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BEST AVAILABLE COPY

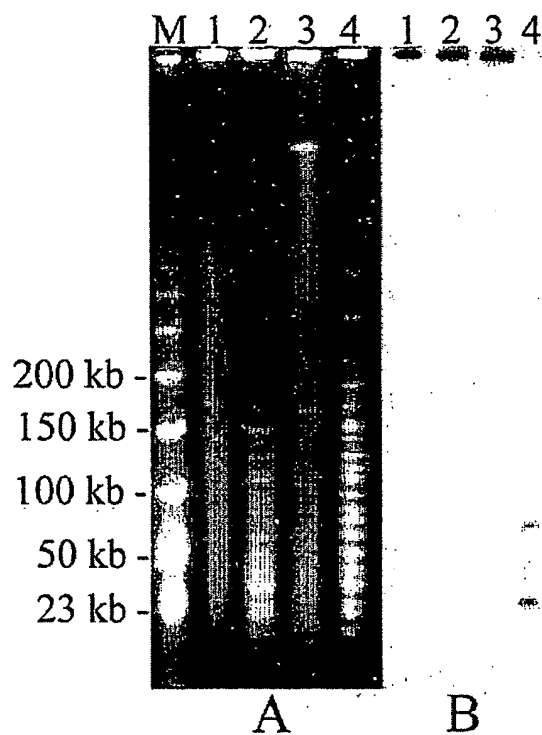


FIGURE 1A

FIGURE 1B

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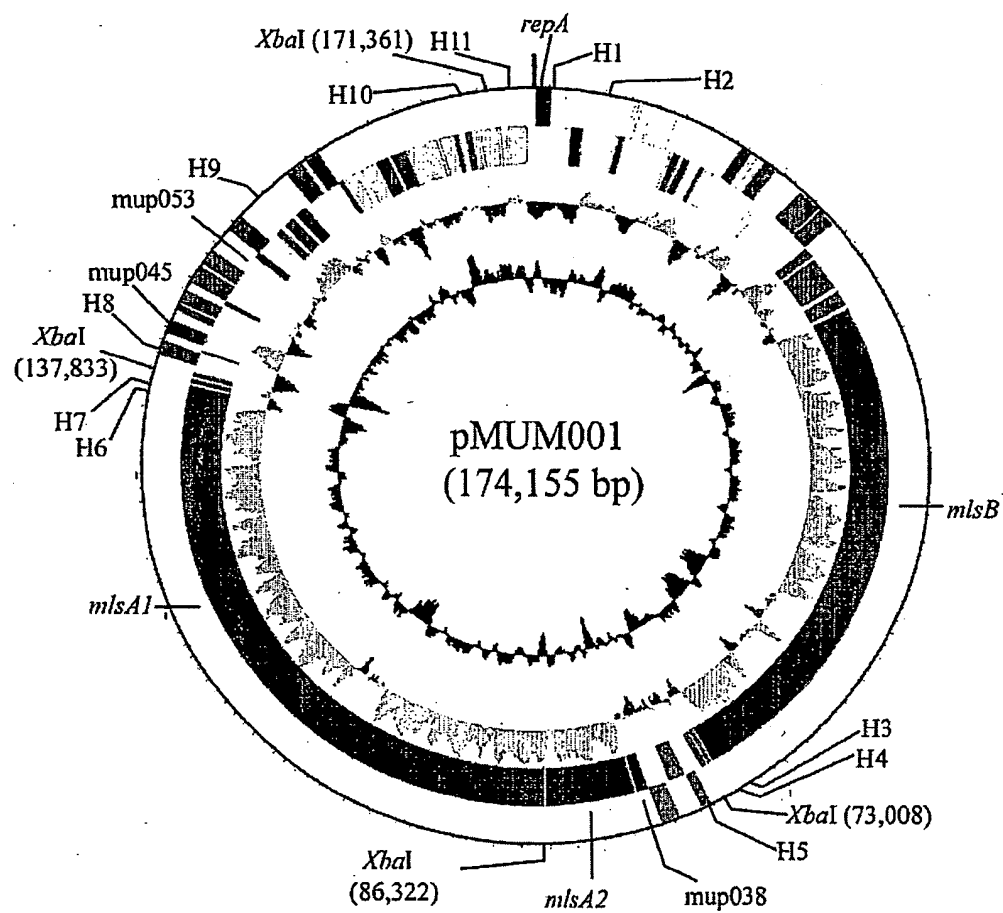


FIGURE 2

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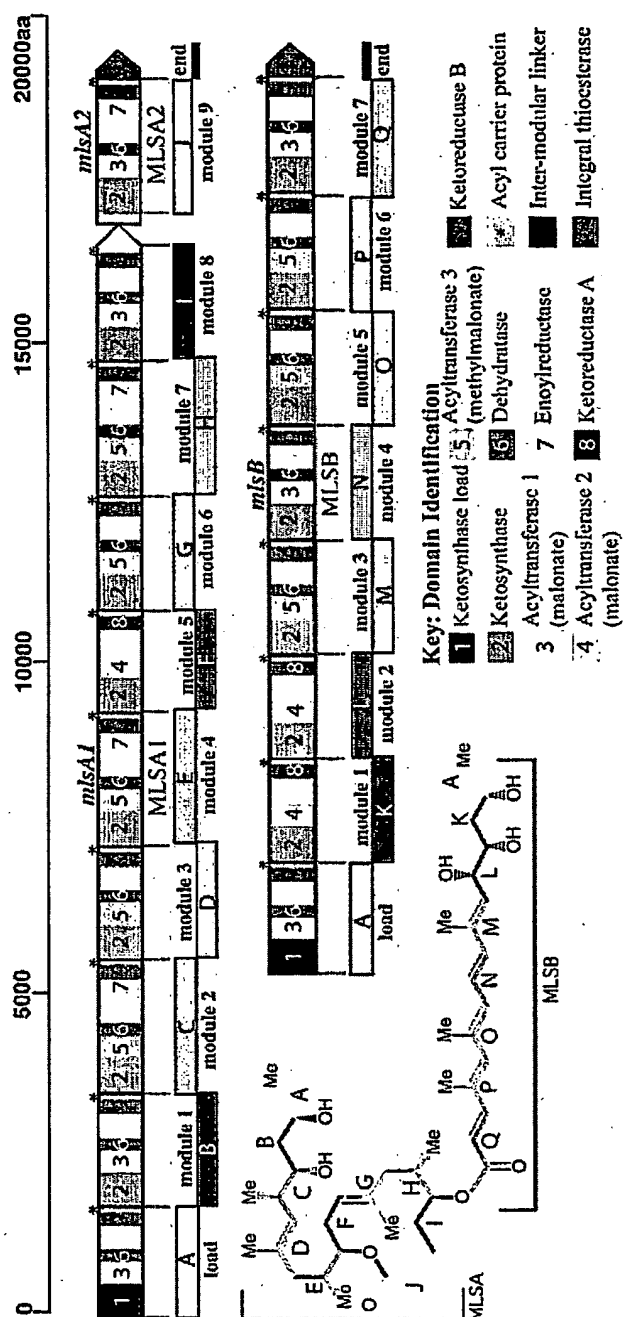


FIGURE 3

FIGURE 4A

FIGURE 4B

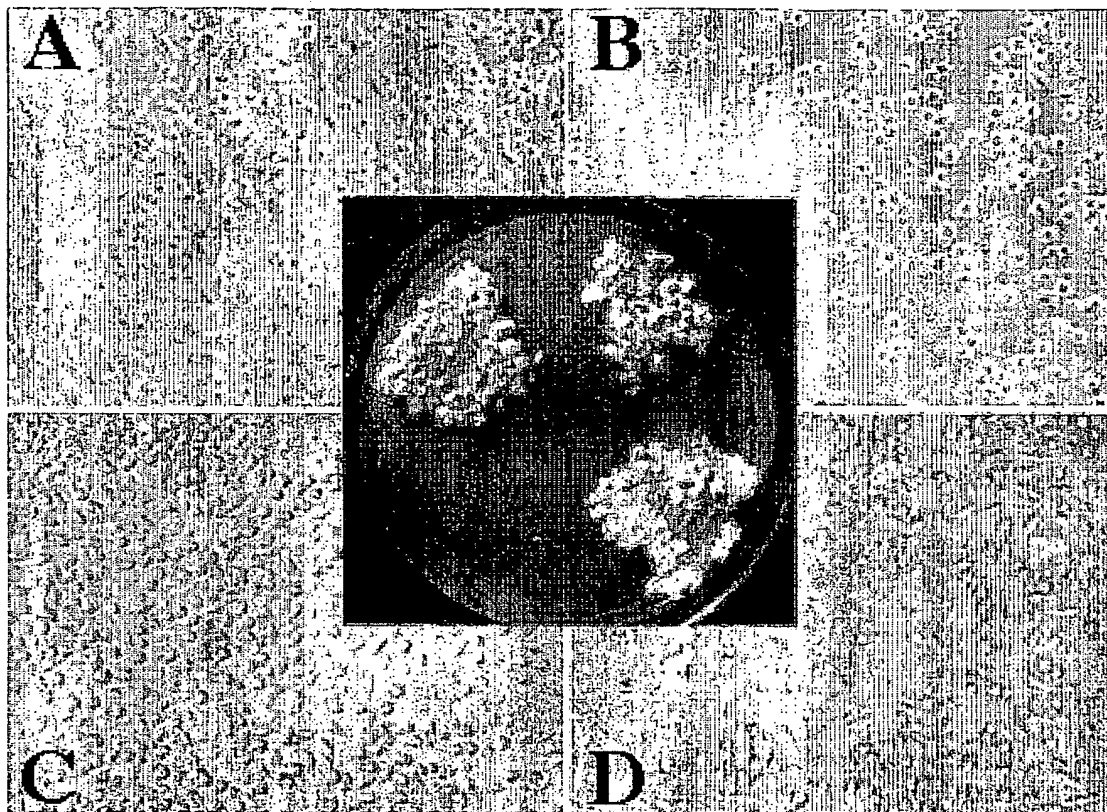


FIGURE 4C

FIGURE 4D

FIGURE 5A

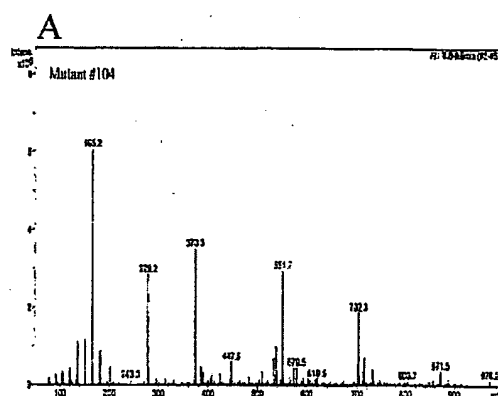


FIGURE 5B

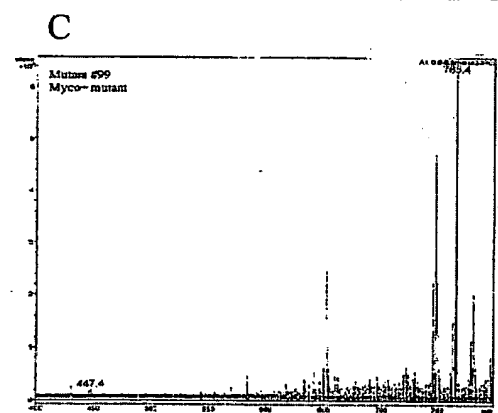
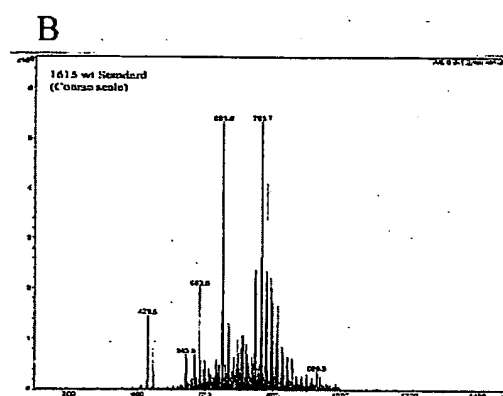


FIGURE 5C

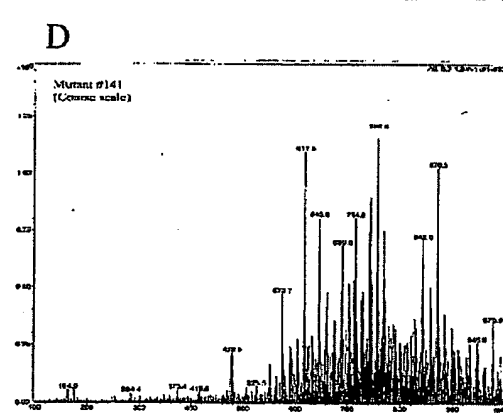


FIGURE 5D

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## MslA1 gene

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201 gaccgatgag caacgatcag cgcttcggca tggcgccctt cttgatgacg
251 tcgaagggtt tgacgccggt ttcttcggaa ttaaccctc cgaagctggg
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701 ctgacggacg ctgctacacc ttcgacgcac gtgccaacgg atacgttcgt
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FIGURE 6

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3001 cccctgctgc tcgctggcca cgacaccgcg gatctacaga tcaccgtcac
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FIGURE 6(continued)

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 8451 acagatcacc gtcaccgaca ccgatgacat gggccggcag tctcttaaca

FIGURE 6(continued)



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 11251 gccaccaact ccgatgacg tgaggggtat gcgatgaccg gcggcgcgac  
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FIGURE 6(continued)

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11801 accccatcga agccggcgcc ctacacgcca cctacggcca ccaccacacg
11851 ccgatcaaac cgctttggct gggatccatc aaatccaaca tcggccacac
11901 ccaagccgcc gccggcgccg ccggtgtggt caagatgatc caagccatca
11951 cccacgccac cttgcccgcc accttgacag tcgaccaacc cagccccac
12001 atcgactggt ccagcggcac agtcgcactc ctaaccgagc ccattccaatg
12051 gcccaacacc gaccaccccc gcaccgcggc ggtgtcctca ttcggcacatc
12101 gcggcaccaa cgcccacctc atcctccaac aacccccac cccgcacacc
12151 acacaaaccc ccaaccccc aacaggttct gatcccgagc tgggttctga
12201 ttccgcagtg ggttctgatc ccgcagtggt tgtactggtg tggccgttgt
12251 cagcgcgttc agcgcggggg ttaagcgcac aagcggcccg tctgtaccag
12301 catctcagcg cccacccccga tctggatccg atcgatgtag cccacagcct
12351 ggttaccaca cgcagccacc acccccaccg cgccaccatc accaccagca
12401 ttgagcacca cagcgaaaac aaccacgaca caaccgatgc gctggccgca
12451 ctgcacgccc tggccaacaa cggcacacac cccctgctga gcagaggcct
12501 gctgacccca caggcccccg gcaaaacagt gttcgtgttc cccggacagg
12551 gcagtcaata ccccggcagc ggcgcagatc tctaccgcca attccccgtg
12601 ttgcccacag ccctcgacgc atgcgacgca gcgttacagc ctttactgg
12651 atggtcggtg ctactgtgtg tacacgacga acccgaggcc ccgtcgttgg
12701 agcgagtcga tgtggtccag cctgtgttgt tctcgggtgat ggtgtcgtta
12751 gccgcactct ggcggtgggc cggaaacacc cccgatgcag tcatcgccca
12801 ctcccagggc gagatcgccg cggcacatgt ggccggagcc ctgaccttgc
12851 ccgaagcagc tgcggtagtg gctttgcgca gccgtgtctt gaccgacctg
12901 gccggtgccc gtgccatggc ttcagtgtga tcgcccagg aaccactgac
12951 ccagctgctg gcacggtggg acggcaagat cactgtcgcc gcagttaacg
13001 gccccgctag cgctgtggtc tccggcgata ccacagcgat caccgaattg
13051 ctgattacct gogaacacga aaacatcgac gctcgcgcta tccgggtgga
13101 ctaccctctc cattccccct atatggaaca catccgccat cagttcctcg
13151 acgagctacc cgagctgaca ccgcggccat caaccatcgc gatgtattcc
13201 accgtcgacg gcgaacctca cgacaccgcc tacgacacca ccacaatgac
13251 cgcggactac tggtaaccga acatccgtaa cactgtccgg ttccatgaca
13301 ctgtcgtctg cctgctcggg gcgggtgagc aggttttctt ggaactttca
13351 cctcaccggg tgttgacaca agcgatcacc gacaccgtcg aacaagccgg
13401 cggcgccggc gcagcagtcg cagctctacg caaggatcgc cctgatgctg
13451 tcgctgtcgc tgcagcactc ggccagctgc actgccatgg catcagccca
13501 tcctggaatg ttctttactg ccaggcccgc cccctcacac tgcccaccta
13551 cgctttccag catcagcgtt actggtgtgt gccaccgct ggtgatttca
13601 ggggggcaaa taccacgcc atgcatccgc tgctagacac cgccaccgaa
13651 ctggccgaaa acccgggatg ggtgttcacc ggccggatca gccacgcac
13701 ccaaccatgg ctaaaccgaac acgcccgcga atcagccgtg ctgttcccag
13751 gcaccggatt cgtcgagcta gcctgcatg tcgctgaccg tgcgggat
13801 tcctcgggtc acgaactgat cgtgcacacc cccctgctac tcgctggcca
13851 cgacaccgcg gatctacaga tcaccgtcac cgacaccgat gacatgggccc
13901 ggagttctct taacatccac tcgcgcccac atatoggcca tgacaacacc
13951 accaccggcg atgaacaacc cgagtgggtc ctgcatgcca ggcagtcct
14001 gaccgcacaa accaccgacc acaaccacct cccctaacg cctgtgccgt
14051 ggctccacc cggcacagc gcgatogagg tggatgactt ctacgacgac
14101 ctggctgcac agggctacaa ctacggcccg acattccaag gtgtgcaacg
14151 gatattggct gaccacgcca caccgatgt catctacgcc gaagttgaac

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FIGURE 6(continued)

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14201 taccogaaga caccgacatc gacggctacg gcatccaccc cgccttattc  
 14251 gacgcgctt tacacccctt actcgccctg acccaacccc ccaccaacga  
 14301 caccgatgac accaacaccg cagacaccgg tgaccagggtg cggctgccct  
 14351 acgcctttac cggcatcagt ttgcacgcca cccacgccac ccgattacgg  
 14401 gtacggctga cccgtaccgg cgcgatgcc atcaccgtgc acaccagtga  
 14451 caccaccgga gcccgggtgg cgatcatcga ctcatcgatc acccgccccc  
 14501 tcaccacogc cacagggtct gctccggcaa ccacagcagc tggcctacta  
 14551 cactgagct ggccaccaca ccctgacacc acgaccgaca ccgacaccga  
 14601 caccgatgcc ctgcggtatc aggtgatcgc cgaacccact caacaactgc  
 14651 cccgtacct gcacgacct caccaccaga ccgacctgca caccagcacc  
 14701 accgaagcag acgtggttgt gtggccggta ccggtgccca gcaacgaaga  
 14751 gctccaggca caccaagcat ccgacaccgc ggtgtcttct cggatacaca  
 14801 ccctgaccgg ccaaactt accgtggtgc aggactggct cactacccc  
 14851 gacaccacgg gacccgact ggtcatcgtg acccgccacg gcgtcagcac  
 14901 cagtgccac gacccggtcc ccgacctagc ccacgccga gtgtggggcc  
 14951 tgatccgcag cgcacaaaac gaacaccccg gacgcttcac actgctcgac  
 15001 accgacgaca acaccaacag cgacaccctc accaccgccc taacctgccc  
 15051 aaccgcgcaa aaccaactgg ccatacgccg cgacaccatc cacatccccc  
 15101 gcctgaccgg caccgctgtc ctgacaccac cggacagcgg cccctggcgc  
 15151 cttgacacca cgggcaaggg tgatctggcc aacctcgccc tgctaccgac  
 15201 cgccacact gccctggcct ctggacaaat ccgtatcgat gtccgggccc  
 15251 ctggtttgaa ttttcacgac gtggtcgtcg cgttggggct aatccccgac  
 15301 gacggattcg gcggaagc cgccggggtg atcagcgaga tcggtccga  
 15351 cgtctacgga ttgcgctgg gtgatgccgt gaccggcatg accgtctctg  
 15401 gtgcgtttgc ccccgact gtcgctgac acccgatggg gatgacgac  
 15451 ccggcccggt ggtccttccc ccaagccgca tccataccgg tggattcct  
 15501 gaccgcctac atcgctttgg ccgagatctc gggcctaagc cgagggaac  
 15551 gagtgtgat ccattgccgc actggcggtg tgggtatggc tgcgattcaa  
 15601 ttggcacacc atttggtgac cgaagtattc gccaccgcca gcgcgcgaa  
 15651 atggagcacc cttgaggcac tgggggtacc gcgcgaccat atcgcttct  
 15701 cgcgtactct ggacttttcc aacgcattcc tcgatgccac caacggcgcc  
 15751 ggtgttgatg tcgtattgaa ctgcctcagt ggtgaattcg tcgaagcatc  
 15801 cctagccctg ctgcccccg cgtggccattt cgtcgaaatc ggcaaaaccg  
 15851 acatccgtga taccgaggtc atcgccgcaa cccatcccg cgtcatttac  
 15901 cgcgcctcg atctgctcag cgtctcccc gatcacatcc agcgacact  
 15951 ggcccaactg tccccactgt ttgccaccga caccctaaaa cccctaccga  
 16001 ccactaatta cagcatctac caagccatct cggccttacg tgacatgagt  
 16051 caagcccgtc acacaggcaa gatcgtgctc actgcgcggg tgggtgtaga  
 16101 tcctgagggc acggtgttga tcaccggggg gaccgggacg ctgggtgcct  
 16151 tgttcgccga gcatctggtt tctgcccacg gtgtccggca tctgtgttg  
 16201 acctgcggc gcgacctca gggccacggt gccaccgac tgcagcagcg  
 16251 gctcaccgat ctagggtctc atgtcaccat caccgctgc gatatcagcg  
 16301 accccgaagc actggccgcc ctggtcaatt cagtgcacac acaacaccgt  
 16351 ttaaccgcgg tagtgacac cgccgtggta ttggccgaca ccccggtcac  
 16401 cgagttgacc ggcgatcaac togaccagg gctggccccc aaaatcgacg  
 16451 cggcatggca gctgcaccaa ctacactacg aacacaacct gtctgcatc  
 16501 atcatgttct cgtccatggc cgaatgata ggcagtcccc gtctgggtaa  
 16551 ctacgcggca gccaacaccg cgttagatgc tctgcgcgac taccgccacc  
 16601 gcctgggctt gccgcgacc agcctggcct ggggctactg gcagaccgc  
 16651 accggtctca cgcgcactc aaccgatgta gatctagccc gcatgaccgc  
 16701 cctgggtttg atgcccacg ccaccagcca cggactggcc ctgttcgatg  
 16751 ccgcctcgc caccggacag ccggtttcga taccgcccc gatcaacacc  
 16801 cacaccctgg cccgacacgc ccgcgacaac accctggccc cgtcctgtc  
 16851 tgcgtgatc accacaccac ggcgcggggc ggcctctgcc gcaaccgatc  
 16901 tcgtgcccc cctcaacgga cttagcccc aacagcaaca acaaacactg  
 16951 gccaccctcg tggcccgcc caccgccacc gtgctgggccc accacacccc  
 17001 cgaaagcatc agccagcca ccgcgttcaa agacctcgga atcgattcgc

FIGURE 6(continued)

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17051 -tgaccgcccct tgaactgcgc aacaccctca cccacaacac cggcctcaac
17101 ctttcgtcca ctcttatctt cgtacacccc acaccccatg cgggtggccga
17151 gcatctgctt gaacagatcc ctggcatcgg tgccttggtg ccggctccgg
17201 tggatgatcgc agctggtcgt accgaggagc cgggtggcggg ggtggggatg
17251 gcgtgtcgtt tccccgggtg tgctgcacat gccgatcagt tgtgggactt
17301 ggtgatcgct ggccgtgatg tgggtgggtaa ttttcgggcc gatcgggggtt
17351 gggatgtgga gggactgttt gatcccgatc cggacgcggg cggcaaaacc
17401 tacacccggt acggcgcggt ccttgacgat gcggcagggt ttgatgccgg
17451 gttctttggg atctctccac gggaggcacg cgcgatggac cccagcagc
17501 ggtgctgctt ggaggtgtgc tgggaagcgc tagaaaccgc gggatattccc
17551 gcgcacacct tggccggcac ctccaccggg gtattcgtcg gagccggggc
17601 ccagtcctac ggccgccacca actccgatgg cgtgagggg tatgcgatga
17651 gtcgctggcg gatcagcgtc atgtccggcc gtatgccta cacttgggc
17701 ctagaaggtc cagcgatcac cgttgacacc gcctgctcgt catcgctggg
17751 ggcaattcac ctggcctgcc aatccttacg caacaacgaa tcccagctag
17801 cactggccgg cggcgctcacc gtgatgagca cacctgcgat tttaccgag
17851 ttctcccgcc aacgcggcct ggccccagat ggacgctgca aagccttcgc
17901 cgtaccgccg gatggcaccg gctttggtga aggcgccggg gtcttggtcc
17951 ttgaaggcgt ctccgaggcc cgccgcaaca accaccggg ccttgcgatc
18001 gtcgctggat cgcgatcaa ccaagacggc gcattccaac gactgaccgc
18051 accccacggc ccgtcacaa aacgcgtcat caaccaagca ctagccaacg
18101 ccggcctcac ccacgaccag gtgcagcccg tcgaagcca cggcaccggc
18151 accacactgg gtgaccccat cgaagccagc gccctacacg ccacctacgg
18201 ccaccaccac acgcccgatc aaccgcttg gctgggatcc atcaaattcc
18251 acatcgcca caccgaagcc gccgcggcg ccgcccgtgt ggtcaagatg
18301 atccaagcca tcaccacgc caccttgccc gccaccttgc acgtcgacca
18351 acccagcccc cactcgact ggtccagcg cacagtccga ctctaaccg
18401 agcccatcca atggcccaac accgaccacc ccgcaccgc ggcggtgtcc
18451 tcattcggca tcagcggcac caacgccac ctcatctccc aacaaccccc
18501 ccccccgac accacacaaa ccccaacac cacaacaggt tctgatcccg
18551 cagtgggttc tgattccgca gtgggttctg atcccgagt ggggtgactg
18601 gtgtggccgt tgtcagcgcg ttcagcgcgg gggttaagcg cacaagcggc
18651 ccgtctgtac cagcatctca gcgccacccc cgtctggat ccgatcgatg
18701 tagccacag cctggctacc acacgcagcc accaccccca ccgcgccacc
18751 atcaccacca gcattgagca ccacagcgaa aacaaccacg acacaaccga
18801 tgcgctggcc gcactgcacg ccctggccaa caacggcaca cccccctgc
18851 tgagcagagg cctgctgacc ccacagggcc ccggcaaaac agtggtcgtg
18901 tccccgggac agggcagtc ataccccgcc atgggcgag atctctaccg
18951 ccaattcccc gtgttcgccc acgccctcga cgcagcgac gcagcgttac
19001 agcctttcac tggatggctg gtgctagctg tgttacacga cgaaccgag
19051 gcccgcgtct tggagcgggt cgtgtggtc cagcctgtgt tgttctcggg
19101 gatggtgtcg ttagccgcac tctggcgggt ggccggaatc acccccgatg
19151 cagtcatcgg ccactcccag ggcgagatcg ccgcggcaca tgtggccgga
19201 gccctgacct tgcccgaagc agctgcggta gtggccttgc gcagccgtgt
19251 cttgaccgac ctggccgggt ccggtgccat ggcttcagt ctatcgcccg
19301 aggaaccact gaccagctg ctggcacggg gggacggcaa gatcactgtc
19351 gccgcagtta acggccccgc tagcgtgtgt gtctccggcg ataccacgc
19401 gatcaccgaa ttgctgatta cctgcgaaca cgaaaacatc gacgctcggg
19451 ctatcccggt ggactacccc tctcattccc cctatatgga acacatccgc
19501 catcagttcc tcgacgagct acccgagctg acaccgcggc catcaaccat
19551 cgcgatgtat tccaccgtcg acggcgaacc tcacgacacc gcctacgaca
19601 ccaccacaat gaccgcggac tactggtacc gcaacatccg taacactgtc
19651 cggttccatg acactgtcgc tgccctgctc ggggcgggtg agcaggtttt
19701 cctggaactt tcacctacc cgggtgtgac acaagcgatc accgacaccg
19751 tcgaacaagc cggcggcgcc ggccgagcag tgccagctct acgcaaggat
19801 cgcctgatg ctgtcgcgtt cgtgcagca ctggccagc tgcactgcca

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FIGURE 6(continued)

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19851 tggcatcagc ccatcctgga atgttcttta ctgccaggcc cgccccctca
19901 cactgcccac ctacgctttc cagcatcagc gttactggct gctgcccacc
19951 gctggtgatt tcagcggggc caataccac gccatgcac cgctgctaga
20001 caccgccacc gaactggcog aaaaccgcg atgggtgttc accggcggga
20051 tcagcccacg caccacaacca tggctaaacg aacacgcgt cgaatcagcc
20101 gtgctgttcc caggcacccg atttgcgag ctacgcgtgc atgtcgtga
20151 ccgtgccgga tattcctcgg tcaacgaact gatcgtgcac acccccctgc
20201 tgctcgctgg ccacgacacc gcggatctac agatcacgt caccgacacc
20251 gatgacatgg gccggcagtc tcttaacatc cactcgcgc cacaatcgg
20301 ccatgacaac accaccaccg gcgatgaaca acccgagtgg gtccctgcag
20351 ccagcgcagt cctgaccgca caaaccaccg accacaacca cctcccccta
20401 acgctgtgac cgtggcctcc acccggcaca gccgcgatcg aggtggatga
20451 cttctacgac gacctggctg cacagggcta caactacggc ccgacattcc
20501 aaggtgtgca acggatatgg cgtgaccacg ccacaccga tgtcatctac
20551 gccgaagttg aactaccgga agacaccgac atcgacggct acggcatcca
20601 ccccgcccta ttcgacgcgc ctttacaccc cctactcgcc ctgaccaaac
20651 cccccaccaa cgacaccgat gacaccaaca ccgcagacac cggggaccag
20701 gtgcggtgac cctacgcctt taccggcacc agtttgacg ccaccacgc
20751 caccgcattg cgggtacggc tgacccgtac cggcgcgat gccatcacgc
20801 tgacaccag tgacaccacc ggagccccgg tggcgatcat cgactcattg
20851 atccccgcgc cctcaccac cggcacaggg tctgctccgg caaccacagc
20901 agctggccta ctacacctga gctggccacc acaccctgac accacgaccg
20951 acaccgacac cgacaccgat gccctgcggt atcgggtgat cgccgaaccc
21001 actcaacaac tgccccgcta cctgcacgac ctacacacca gcaccgacct
21051 gcacaccagc accaccgaag cagacgtggt tgtgtggccg gtaccggtgc
21101 ccagcaacga agagctccag gcacaccaag catccgacac cgcgtgtct
21151 tctcggatag acaccctgac ccgcaaaaca cttaccgtgg tgcaggactg
21201 gctcactcac cccgacacca ccggcaccgc actggtcatc gtgaccgcgc
21251 acggcgctag caccagtgcc cagcaccggc tccccgacct agcccacgcc
21301 gcagtgtggg gcctgatccg cagcgcccaa aacgaacacc ccggacgctt
21351 cacactgctc gacaccgacg acaacaccaa cagcgacacc ctaccaccg
21401 ccctaaccct gccaaaccgc gaaaaccaac tggccatacg ccgcgacacc
21451 atccacatcc cccgcctgac ccgacacagc agtgacggtg cgctcactgc
21501 gccggtggtg gtagatcctg agggcacggt gttgatcacc ggggggaccg
21551 ggacgctggg tgccctgttc gccgagcatc tggtttctgc ccatggtgtc
21601 cggcatctgt tgttgacctc gcggcgcgga cctcaggccc acggtgccac
21651 cgatctgcag cagcggctca ccgatctagg tgcctatgtc accatcacgg
21701 cctgcgatat cagcgacccc gaagcactgg ccgcctggt caattcagt
21751 cccacacaac accgtttaac cgcggtagt caccaccgcg cggatttggc
21801 cgacaccccg gtcaccgagt tgaccggcga tcaactcgac caggtgctgg
21851 cccccaaaat cgacgcggca tggcagctgc accaactcac ctacgaacac
21901 aacctgtctg cattcatcat gttctcgtcc atggcggaa tgataggcag
21951 tcccggtcag ggtaactacg cggcagccaa caccgcgta gatgctctc
22001 ccgactaccg ccaccgcctg ggcttgcccg cgaccagcct ggctggggc
22051 tactggcaga ctacaccgg tctcaccgcg catctaaccg atgtagatct
22101 agcccgcatg acccgctggt gtttgatgcc catcgccacc agccacggac
22151 tggccctgtt cgatgccgcc ctcgccaccg gacagcccgt ttcgataccc
22201 gccccgatca acacccacac cctggcccga cagcccgcg acaacacct
22251 ggccccgatc ctgtctgcgc tgatcaccac accacggcgc cggcgccct
22301 ctgcgcgaac cgatctcgct gccgcctca acggacttag ccccaacag
22351 caacaacaaa cactggccac cctcgtggcc gcggccaccg ccaccgtgct
22401 gggccaccac accccgaaa gcacagccc agccaccgcg ttaaagacc
22451 toggaatcga ttcgctgacc gcccttgaa tgcgcaacac cctcaccac
22501 aacaccggcc tggatctgcc cccaccctc atcttcgatc acccacacc
22551 caccgcgcta acccaacacc tgacacccg actcaccacc ggtgccctg
22601 tgccggctcc ggtggtgatc gcagctggtc gtaccgagga gccggtggcg

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FIGURE 6(continued)

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22 651 gtggtgggga tggcgtgtcg tttccccggt ggtgtcgcat cagcggatca
22 701 gttgtgggac ttggtgatcg ctggccgtga tgtggtgggt aattttccgg
22 751 ccgatcgggg ttgggatgtg gagggactgt ttgatcccga tccggacgcg
22 801 gtcggcaaaa cctacacccg ttacggcgcg ttccttgacg atcgcgacgg
22 851 ttttgatgcc gggttctttg ggatctctcc acgggaggca cgcgcgatgg
22 901 acccccagca gggctgtcg ctggaggtgt gctgggaagc gctagaaacc
22 951 cgggtatttc ccgcgcacac cttggccggc acctccaccg gggatttcgt
23 001 cggagcctgg gccagtcct acggcgccac caactccgat gacgctgagg
23 051 ggtatgcgat gaccggcggc gcgatcagcg tcatgtccgg ccgtatcgcc
23 101 tacaccttgg gcctagaagg tccagcgatc accgttgaca ccgcctgtc
23 151 gtcacgtcgt gtggcaattc acctggcctg ccaatcctta cgcaacaacg
23 201 aatcccagct agcactggcc ggcggcgtca ccgtgatgag cacacctgcy
23 251 gttttcaccc atttctcccg ccaacgcggc ctggccccag atggacgctg
23 301 caaagccttc gccgtaccg ccgatggcac cggctttggt gaaggcgccg
23 351 cggctcttgg ccttgaacgg ctctccgagg ccgcgcgcaa caaccaccg
23 401 gtccttgcca tcgtcgctgg atcggcgatc aaccaagacg gcgcatccaa
23 451 cggactgacc gcacccacg gcccgtcaca acaacgcgtc atcaaccaag
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23 551 cacggcaccg gcaccacact gggtagcccc atcgaagccg gcgccttaca
23 601 cgccacctac ggccaccacc acacgcccga tcaaccgctt tggctgggat
23 651 ccatacaatc caacatcggc cacacccaag ccgcgcggcg ccgcgcgggt
23 701 gtggtcaaga tgatccaagc catcacccac gccaccttgc ccgccacctt
23 751 gcacgtcgac caaccacgcc ccacatcga ctggtccagc ggcacagtcc
23 801 gactcctaac cgagcccatc caatggcca acaccgacca ccccgccacc
23 851 gcggcggtgt cctcattcgg catcagcggc accaacgccc acctcatcct
23 901 ccaacaaccc cccacccccg acaccacaca aacccccaac accacaacag
23 951 gttctgatcc cgcagtgggt tctgatcccg cagtgggtgt actggtgtgg
24 001 ccgttgtagc cgcgttcagc gccgggggta agcgacaagc cggcccgctc
24 051 gtaccagcat ctacgcgcc accccgatct ggatccgatc gatgtagccc
24 101 acagcctggc taccacacgc agccaccacc ccacccgcgc caccatcacc
24 151 accagcattg agcaccacag cgaacaacac cacgacacaa ccgatgcgct
24 201 ggccgcactg cagcccttgg ccaacaacg caccaccccc ctgctgagca
24 251 gaggcctgct gacccacacg ggcgccggca aaacagtgtt cgtgttcccc
24 301 ggacagggca gtcaataccc cggcatgggc gcagatctct accgccaatt
24 351 ccccggttcc gccacgccc tcgacgcatg cgacgcagcg ttacagcctt
24 401 tcaactggatg gtcggtgcta gctgtgttac acgacgaacc cgaggccccg
24 451 tcggtggagc gggctgatgt ggtccagcct gtgttgttct cgggtgatgg
24 501 gtcgttagcc gcaactctgg ggtgggcccg aatcaccccc gatgcagtca
24 551 tcggccactc ccagggcgag atcgcccgcg cacatgtggc cggagccctg
24 601 accttgcccc aagcagctgc ggtagtggct ttgcccagcc gtgtcttgac
24 651 cgacctggcc ggtgccggtg ccattggctc agtgctatcg ccgaggaac
24 701 cactgaccca gctgctggca cgggtgggac gcaagatcac tgtcgccgca
24 751 gttaacggcc ccgctagcgc tgtggtctcc ggcgatacca cagcgatcac
24 801 cgaattgctg attacctgcg aacacgaaaa catcgacgct cgcgctatcc
24 851 cgggtggacta cccctctcat tccccctata tggaaacacat ccgccatcag
24 901 ttcctcgacg agctacccga gctgacaccg cggccatcaa ccatcgcgat
24 951 gtattccacc gtgcagggcg aacctcacga caccgcctac gacaccacca
25 001 caatgaccgc ggactactgg taccgcaaca tccgtaacac tgtccgggtc
25 051 catgacactg tcgctgccct gctcggggcg ggtgagcagg ttttcttgg
25 101 actttcacct caccgggtgt tgacacaagc gatcacccgac accgtcgaac
25 151 aagccggcgg cggcgggcgca gcagtgcag ctctacgcaa ggatcgccct
25 201 gatgctgtcg cgttcgctgc agcactcggc cagctgcact gccatggcat
25 251 cagcccatcc tggaatgttc tttactgcca ggcccgcccc ctacactgc
25 301 ccacctacgc tttccagcat cagcgttact ggctgctgcc caccgctgg
25 351 gatttcagcg gggccaatac ccacgcatg catccgctgc tagacaccgc
25 401 caccgaactg gccgaaaacc gcggatgggt gttcaccggc cggatcagcc

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FIGURE 6(continued)

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25451 cacgcaccca accatggcta aacgaacacg ccgtcgaatc agccgtgctg
25501 ttcccaggca ccggatttgt cgagctagcg ctgcatgtcg ctgaccgtgc
25551 cggatattcc tcgggtcaacg aactgatcgt gcacaccccc ctgctactcg
25601 ctggccacga caccgcggat ctacagatca ccgtcaccca caccgatgac
25651 atgggccggc agtctcttaa catccactcg caccacata tcggccatga
25701 caacaccacc accggcgatg aacaaccga gtgggtcctg catgccagcg
25751 cagtcctgac cgcacaaacc accgaccaca accacctccc cctaaccgct
25801 gtgccgtggc ctccacccgg cacagccgcg atcgaggtgg atgacttcta
25851 cgacgacctg gctgcacagg gctacaacta cggcccga ca ttccaagggtg
25901 tgcaacggat atggcgtagc cagccacac ccgatgtcat ctacgccgaa
25951 gttgaactac ccgaagacac cgacatcgac ggctacggca tccaccccg
26001 cctattcgac gccgctttac accccctact cgccctgacc caacccccca
26051 ccaacgacac cgatgacacc aacaccgag acaccgtga ccagggtcgg
26101 ctgcccactc cgtttaccgg catcagtttg cagccacccc acgccaccgg
26151 attgcccgtg cggtgaccc gtaccggcgc cgatgccatc accgtgcaca
26201 ccagtgcac caccggagcc ccggtggcga tcacgactc attgatcacc
26251 cgcgccctca ccaccgccac agggctctgt ccggcaacca cagcagctgg
26301 cctactacac ctgagctggc caccacaccc tgacaccacg accgacaccg
26351 acaccgacac cgatgccctg cggatatcagg tgatcgccga accactcaa
26401 caactgcccc gctacctgca cgacctacac accagcaccg acctgcacac
26451 cagcaccacc gaagcagacg tggttgtgtg gccggtaccg gtgccagca
26501 acgaagagct ccaggcacac caagcatccg acaccgcggg gtcttctcgg
26551 atacacaccc tgaccgcgca aacacttacc gtgggtcagg actggctcac
26601 tcaccccgac accaccggca ccgactggg catcgtgacc cgccacggcg
26651 tcagcaccag tgcccacgac ccggtccccg acctagccca cgccgcagtg
26701 tggggcctga tccgcagcgc ccaaaacgaa cccccggac gcttcacact
26751 gctcgacac gacgacaaca ccaacagcga caccctcacc accgccctaa
26801 ccccgccaac ccgcgaaaac caactggcca tacgcgcgca caccatccac
26851 atcccccgcc tgaccgcgac cgctgtcctg acaccaccgg acagcggccc
26901 ctggcgctt gacaccaccg gcaagggtga tctggccaac ctgcctctgc
26951 tacgacccgc ccacactgcc ctggcctctg gacaaatccg tatcgatgtc
27001 cgggcgcgtg gtttgaattt tcacgacgtg gtcgtcgcgt tggggcta
27051 ccccgacgac ggattcggcg gagaagcgcg ccgggtgatc agcgagatcg
27101 gtcccgaact ctacggattc gccgtgggtg atgccgtgac cggcatgacc
27151 gtctctgttg cgtttgcccc cagcactgtc gctgatcacc gcattggtgat
27201 gacgatcccg gcccggtggg ccttccccca agccgcaccc ataccggtgg
27251 tattcctgac cgcctacatc gctttggcgg agatctcggg cctaagccga
27301 gggcaacgag tgctgatcca tgccggcact ggccggtgtg gtatggctgc
27351 gattcaattg gcacaccatt tgggtgccga agtattcgcc accgccagcg
27401 ccgcgaaatg gagcaccctt gaggcactgg gggtagcccg cgaccatata
27451 gcttctctgc gtactctgga cttttccaac gcattcctcg atgccaccaa
27501 cgggcgcggg gttgatgtcg tattgaactg cctcagtggt gaattcgtcg
27551 aagcatccct agccctgctg ccccgcggtg gccatttcgt cgaaatcggc
27601 aaaaccgaca tccgtgatac cgaggtcatc gccgcaaccc atcccgcggt
27651 catttaccgc gccctcgatc tgctcagcgt ctccccgat cacatccagc
27701 gcacactggc ccaactgtcc ccaactgttt ccaccgacac cctaaaaccc
27751 ctaccgacca ctaattacag catctaccaa gccatctcgg ccttacgtga
27801 catgagtcaa gcccgtcaca caggcaagat cgtgctcact gcgcccgtgg
27851 tggtagatcc tgagggcacg gtgttgatca ccggggggac cgggacgctg
27901 ggtgccttgt tcgcgagca tctggtttct gcccatggtg tccggcatct
27951 gttgttgacc tcgcggcgcg gacctcaggc ccacggtgcc accgatctgc
28001 agcagcggct caccgatcta ggtgctcatg tcacatcac ggctgcgat
28051 atcagcgacc ccgaagcact ggccgccttg gtcaattcag tgcccacaca
28101 acaccgttta accgcggtag tgcacaccgc cgcggtattg gccgacccc
28151 cggtcaccga gttgacggg gatcaactcg accaggtgct ggccccaaa
28201 atcgacggcg catggcagct gcaccaactc acctacgaac acaacctgtc
28251 tgcattcatc atgttctcgt ccatggccgg aatgataggc agtcccgtgc

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FIGURE 6(continued)

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28301 agggtaacta cgggcagcc aacaccgct tagatgtct cgccgactac
28351 cgccaccgcc tgggcttgcc cgcgaccagc ctggcctggg gctactggca
28401 gactcacacc ggtctcaccg cgcatctaac cgatgtagat ctagcccgca
28451 tgaccgcctt gggtttgatg cccatcgcca ccagccacgg actggccctg
28501 ttcgatgcog ccctcgccac cggacagccc gtttcgatac ccgccccgat
28551 caacacccac accctggccc gacacgccc cgacaacacc ctggccccga
28601 tctcgctgc gctgatcacc acaccaggg gccgggoggc ctctgccga
28651 accgatctcg ctgcccgcct caacggactt agccccaac agcaacaaca
28701 aacactggcc accctcgtgg ccggggccac cgccaccgtg ctgggccacc
28751 acacccccga aagcatcagc ccagccaccg cgttcaaaga cctcggaatc
28801 gatcgctga ccgcccttga actgcgcaac accctcacc acaacaccgg
28851 cctcaacctt tgcctcactc ttatcttga tcacccaca cccatgcgg
28901 tggccgagca tctgcttgaa cagatccctg gcacgggtgc cctgggtggc
28951 gctcggtgg tgatcgagc tggctgtacc gaggagccgg tggcggtggt
29001 ggggatggcg tgcgtttcc ccggtggtgt cgcatcagcg gatcagttgt
29051 gggacttggg gatcgctggc cgtgatgtgg tgggtaattt tccggccgat
29101 cggggttggg atgtggaggg actgtttgat cccgatccgg acgcggtcgg
29151 caaaacctac acccgttacg gcgcttcct tgacgatcg gcaggttttg
29201 atgcccgggtt ctttgggatc tctccacggg aggcacggcg gatggacccc
29251 cagcagcggc tgcgtctgga ggtgtgctgg gaagcgctag aaaccgcggg
29301 tatctccgcg cacaccttgg ccggcacctc caccggggtat ttcgtcgag
29351 ccggggccca gtcctacggc gccaccaact ccgatgagc tgagggtat
29401 gcgatgaccg gggcgcgac tagcgtcatg tccggccgta tgcctacac
29451 cttgggccta gaaggtccag cgatcaccgt tgacaccgcc tgcctcat
29501 cgctggtggc aattcacctg gcctgccaat ccttacgcaa caacgaatcc
29551 cagctagcac tggccggcgg cgtcaccgtg atgagcacac ctgcggtttt
29601 caccgagttc tcccgcacac gcggcctggc cccagatgga cgtgcaaaag
29651 ccttcgcccgc taccgcgat ggcaccggct ttggtgaagg ccgcggtc
29701 ttggtccttg aacggctctc cgaggccgc cgacaacacc acccggtcct
29751 tgcgatcgtc gctggatcgg cgatcaacca agacggcgca tccaacggac
29801 tgaccgcacc ccacggccc tcacaacaac gcgtcatcaa ccaagcacta
29851 gccaacgccc gcctcaccca cgaccaggtc gacgcgctcg aagcccacgg
29901 caccggcacc aactgggtg accccatcga agcggcgcc ctacacgcca
29951 cctacggcca ccaccacag ccgatcaac cgttttggt gggatccatc
30001 aaatccaaca tggccacac ccaagccgc gccggcgcc cggtgtggt
30051 caagatgatc caagccatca cccacggcc cttgcccgcc acctgacg
30101 tgcaccaacc cagccccac atcgactggt ccagcgccac agtccgactc
30151 ctaaccgagc ccatccaatg gccaacacc gaccacccc gcaccgccc
30201 ggtgtcctca ttcgcatca gggcaccaa cggccacctc atcctccaac
30251 aacccccac cctaaccacc acacaaacc ccgaggactg cagccccgca
30301 caatctcctt gcgaacaat caccgatgca ggcacgggat tatcgtttgt
30351 gccctgggtg atttcagcga agtcggctga ggcgttgtct gcgcaggcga
30401 gccgattggt gacgcgcctt gacgatgatc cagttgtcga tgcaatcgac
30451 ctgggggtgt cattgatagc cactcgatcg atgtttgagc atcgcgagt
30501 agttgtgggt gcggatcgtc accagttgca gcgcggttg gccgagttg
30551 cttctggtaa cttgggcgcc gatgtagtg tgggcgggg ccgcgcagcg
30601 ggcgagactg taatggtgtt tcccggtcag ggatcacagc ggttgggcat
30651 gggcgcgag ctttatgaac aattcccgt attcgcgcg gcgtttgatg
30701 acgttggtga tgcgctggac cagtatctgc ggttgccgt acgccaagtt
30751 atgtggggtg acgatgaagg cctgctcaat tcaacggagt tgcgccagcc
30801 gtggttgtt gctgtcgagg tcgactgtt tgcgttgctg cgttctggg
30851 gtgctgttcc ggattacgtg ataggccatt cggtaggaga gctggccgt
30901 gcacaagtgg ctggcgtttt gagcctgcag gacgcggcta aattagtttc
30951 agcgcggggc cgactgatgc aggcctgce cgccggtgga gcgatggtcg
31001 cggtagccgc cagccagcat gaagtcgagc ctttgcgtgt tgaaggggtc

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FIGURE 6(continued)



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31051 gatatcgcg cgctcaatgc gccaggggtca gttgtgatct ctgggtgatca
31101 ggcgggcagtc cgtttgatcg ctaatcgatt ggcgggatagg ggctacaggg
31151 cgcacgaact tgcgggttcg catgcctttc attcatcggt gatggagccg
31201 atgttgagg agttcgctcg gctcgcttct gaaatcggtg tggagcaacc
31251 gcagattcca ctgatttcga acgtgactgg tcagctggcc aacgccgact
31301 acgggtcggc aggttactgg gtggaccaca tccgccgtcc agtcggttc
31351 ccgatagtg tcgcttcgtt ggaagccatg ggggctagct gcttcattga
31401 agtcggtcca gccagcgggt tgggcgcagc tatcgagcaa tccttgaat
31451 ctgccgagcc gaccgtgtca gtgtcggcac tgtccaccga taaacctgaa
31501 tccgtcgccg tattgcgcgc tgcagcacga ctttcacact ccggcattcc
31551 tgtggattgg cagtcggtgt tcgacggccg cagcaccag acagttaacc
31601 tgccaccta cgccttcag cggcaacggt tctggctcga cgccaaccgt
31651 atcggtaag gcgatccgc cagtcaacca caggcccaga acgttgaatc
31701 ccgttttgg gaggcggtcg agcgggaaga cgttgatggc ttggctgatt
31751 ctatagtggt caccgccagt gccatgcaga ccgtgctacc tgcattgtct
31801 tcatggcgtc gcgcggagcg cacacagtcc gagcttgatt cctggcgcta
31851 tcaggtgaca tggctgtctt cccagcaac gccaggttcg atcacgtgt
31901 ccggcatttg gttgctgata gttccaagcg aacttgcaaa gactgacca
31951 gtaattggat gtgctgcagc gctcgaagcg caccggccct tagtcacgat
32001 tatcacaatt ttcgagccgg acttcaatcg ctcattgatg ggcgctccc
32051 taaaagatat cgtttcacac atatctggtg toatatcgtt cttagggatt
32101 cacgggtccg aattctcga tagcggcgcg gtcaagacat taaatcttgt
32151 gcaagcaatg ggcgatgtcc acttagacgt tcctttgtgg tgcctaacgc
32201 agggcgcggt atcgatcagc gccgacgatt tgatccgatg ctgctcagca
32251 gccctggtgt ggggtctggg gagagtcgtc gcattagagc acccgggatc
32301 gtgggggtggc ttagtagacc tccccagtc acccgacgat gcagcatggg
32351 agcgcttgtg cgcctcctc gcgcagccga cggatgaaga tcagtttgcg
32401 atcaggccgt ctggggtttt cctacggaga ttgatccacg ccccggaac
32451 cacgacatcc aaatcctcga ccgcgtgggc tccgaggggg accgtgttaa
32501 tcacaggcgg cacaggcgcg ttaggcgcac acgtcgcaag gtggttgcc
32551 cacaatatg aatcggtaga tttgctctta accagccgtc gcgggatggc
32601 agccgatgga gctacagagc tagtgatga cctccgcagc gctggcgcca
32651 gtgtgacagt gcacgcctgc gacgtgacag accgcacttc agtcaggct
32701 gcaatagcag gtaaatccct tgatgcggtc tttcatcttg caggacgaca
32751 ccagccaact ctgctaacag aactcgagga cgaatccttt agtgacgaat
32801 tggcgccgaa ggttcacggt gcccaagtat tgagtacat caogtctaac
32851 ctcacactat cagcgtttgt catgttctcg tcagtaccg gaatctgggg
32901 cggcaaaagt caaggcgcat atgctgccgc taacgcattc ttagattcgc
32951 tcgccgagaa acggcgcacg ttggggttac cagcaacatc ggtcgcttgg
33001 ggactgtggg ctggcgcgcg catgggagac cggccatccg cttcgggact
33051 aaaccttatt ggcttgaaat cgaatgcagc agatttagct gtgcaggcgc
33101 taagcgacgc cattgacaga ccgcaagcaa cattgactgt tgcgagcgtc
33151 aactgggatc ggttctaccc cacattcgct ttggcgcgac cgaggccctt
33201 cctacacgaa atcacagagg taatggctta ccgcgagtcg atgcgctcaa
33251 gctctgcata gacggcgacg ctctgacga gcaaattagc cggactaacg
33301 gcgacagaac agcgtgcagt caccgggaag ttggtccttg atcaagccgc
33351 atccgttctc gggtacgcct caactgagag tctcgatact catgagtcac
33401 tcaaagacct cggatttgat tcgctgaccg cccttgaact gcgcgaccac
33451 ctocaaactg cgaccggcct caacctttcg tccactctta tcttcgatca
33501 cccacacccc catgcggtgg ccgagcatct gcttgaacag atccctggca
33551 tgggtgccct ggtgcgggct ccggtggtga tcgcagctgg togtaccgag
33601 gagccggtgg cgggtggtgg gatggcggtg cgtttccccg gtggtgtcgc
33651 atcagcggat cagttgtggg acttggtgat cgtggccgt gatgtggtgg
33701 gtaattttcc ggccgacgg ggttgggatg tggagggact gtttgatccc
33751 gatccggagc cgttgggcaa aacctacacc cgttacggcg cgttccttga
33801 cgaatcgcca ggttttgatg ccgggttctt tgggatctct ccacgggagg
33851 cacgcgcgat ggacccccag cagcggctgc tgctggaggt gtgctgggaa

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FIGURE 6(continued)

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33901 gcgctagaaa ccgcggttat tcccgcgcac accttgcccg gcacctccac  
 33951 cggggtattc gccggagcct gggcccagtc ctacggcgcc accaactccg  
 34001 atgacgctga ggggtatgcg atgaccggcg gctcgactag cgtcatgtcc  
 34051 ggccgtatcg cctacacctt gggcctagaa ggtccagcga tcaccgttga  
 34101 caccgcctgc tcgtcatcgc tgggtgcaat tcacctggcc tgccaatcct  
 34151 tacgcaacaa cgaatcccag ctacgactgg ccggcgccgt caccgtgatg  
 34201 agcacacctg cgattttcac cgagttctcc cgccaacgog gcctggcccc  
 34251 agatggacgc tgcaaacctt tcgcccgtac cgccgatggc accggtttg  
 34301 gtgaaggcgc cgcggtcttg gtccttgaac ggctctccga ggccgcgcgc  
 34351 aacaaccacc cggtccttgc gatcgctcgt ggatcgcgca tcaaccaaga  
 34401 cggcgcatcc aacggactga ccgcacccca cggcccgta caacaacgog  
 34451 tcatcaacca agcactagcc aacgcgggcc tcaccacga ccaggtcgac  
 34501 gccgtcgaag cccacggcac cggcaccaca ctgggtgacc ccacgaagc  
 34551 cagcgcccta caccgaccta acggccacca ccacagccc gatcaaccgc  
 34601 tttggctggg atccatcaaa tccaacatcg gccacacca agccgcgcgc  
 34651 ggccgcgcgc gtgtgttcaa gatgatcaa gccatcacc acgccacctt  
 34701 gcccgccacc ttgcacgtcg accaaccag cccccacatc gactggtcca  
 34751 gcggcacagt ccgactccta accgagcca tccaatggcc caaacccgac  
 34801 cacccccgcg ccgcgccggt gtcctcatc ggcatcagcg gcaccaacgc  
 34851 ccacctcatc ctccaacaac cccccacccc cgacaccaca caaaccccca  
 34901 acaccacaac aggttctgat ccgcagtggt gttctgatcc cgcagtggtt  
 34951 gtactggtgt ggccgttgc agcgcttca gcgcccgggt taagcgacaca  
 35001 agcgcccggt ctgtaccagc atctcagcgc ccaccccgat ctggatccga  
 35051 tcgatgtagc ccacagcctg gctaccacac gcagccacca cccccaccgc  
 35101 gccaccatca ccaccagcat tgagcaccac agcgaaaaa accacgacac  
 35151 aaccgatgcg ctggccgcac tgcacgccct ggccaacaac ggacacacc  
 35201 ccctgctgag cagaggcctg ctgacccccc agggcccccg caaaacagtg  
 35251 ttcgtgttcc ccggacaggg cagtcaatac cccggcatgg gcgcagatct  
 35301 ctaccgcca tccccgtgt tcgcccacgc octcgacgca tgcgacgag  
 35351 cgttacagcc tttactgga tggtcggtgc tagctgtgtt acacgacgaa  
 35401 cccgaggccc cgtcgttga ggggtcgat gtggtccagc ctgtgtgtt  
 35451 ctccgtgatg gtgtcgtag ccgcactctg gcggtgggcc ggaatcacc  
 35501 ccgatgcatg catcgccacc tcccaggcg agatcgccgc ggcatatgtg  
 35551 gccggagccc tgaccttgcc cgaagcagct gcggtagtgg ctttgcgag  
 35601 ccgtgtcttg accgacctg ccggtgcggg tgccatggct tcagtgtat  
 35651 cgcgcgagga accactgac cagctgctgg caccgtggga cggcaagatc  
 35701 actgtcgccg cagttaacgg ccccgctagc gctgtggtct ccggcgatac  
 35751 cacagcgatc accgaattgc tgattacctg cgaacacgaa aacatcgacg  
 35801 ctccgcttat cccggtggac taccctctc attcccccta tatggaacac  
 35851 atccgccatc agttcctcga cgagctaccc gagctgacac cgcggccatc  
 35901 aaccatcgcg atgtattcca ccgtcgacgg cgaacctcac gacaccgctt  
 35951 acgacaccac cacaatgacc gggactact ggtaccgcaa catccgtaac  
 36001 actgtccggt tccatgacac tgcgtgccc ctgctcggg cgggtgagca  
 36051 ggttttctcg gaactttcac ctaccccggt gttgacacaa gcgatcaccg  
 36101 acaccgtcga acaagccggc ggccggcgcg cagcagtgcc agctctacgc  
 36151 aaggatcgcc ctgatgctgt ccggttcgct gcagcactcg gccagctgca  
 36201 ctgccatggc atcagcccat cctggaatgt tctttactgc caggcccgcc  
 36251 cctcacact gccacctac gctttccagc atcagcgta ctggtgctg  
 36301 cccaccgctg gtgatttcag cggggccaat accacgcca tgcacccgt  
 36351 gctagacacc gccaccgaac tggccgaaaa ccgcgatgg gtgttaccg  
 36401 gccggatcag cccacgcacc caaccatggc taaacgaaca cgcgctcgaa  
 36451 tcagccgtgc tgttcccagg caccgattt gtcgagctag cgtgcatgt  
 36501 cgtgaccgt gccggtatt cctcggtcaa cgaactgat gtgcacacc  
 36551 cctgctact cgtggccac gacaccgcg atctacagat caccgtcacc  
 36601 gacacgatg acatggcgc gcagtctctt aacatccact cgcaccaca  
 36651 tatcgccat gacaacacca ccaccggcga tgaacaacc gagtgggtcc  
 36701 tgcattgccag cgcagtcctg accgcacaaa ccaccgacca caaccacctc

FIGURE 6(continued)

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36751 cccctaacgc ctgtgccgtg gcctccaccc ggcacagccg cgatcgaggt
36801 ggatgacttc tacgacgacc tggctgcaca gggctacaac tacggcccga
36851 cattccaagg tgtgcaacgg atatggcgctg accacgccac acccgatgtc
36901 atctacgccc aagttgaact acccgaagac accgacatcg acggctacgg
36951 catccacccc gccctattcg acgccgcttt acacccccta ctgcacctga
37001 cccaa ccccc caccaacgac accgatgaca ccaacaccgc agacaccggg
37051 gaccaagtgcc ggctgcccta cgcctttacc ggcatcagtt tgcaagccac
37101 ccaagccacc cgattacggg tacggctgac ccgtaccggc gccgatgcca
37151 tcaccgtgca caccagtgc accaccggag ccccggtggc gatcatcgac
37201 tcattgatca cccgccccct caccaccgcc acagggctctg ctccggcaac
37251 cacagcagct ggcctactac acctgagctg gccaccacac cctgacacca
37301 cgaccgacac cgacaccgac accgatgccc tgcggatatca ggtgatcgcc
37351 gaaccactc aacaactgcc ccgtacctg cagaccta acaccagcac
37401 caccgaagca gacgtggttg tgtggccggt accggtgcc agcaacgaag
37451 agctcagggc acaccaagca tccgacaccg cgggtgtctt tcggatacac
37501 accctgaccc gccaaacact taccgtggtg caggactggc tcaactaccc
37551 cgaca cacc ggcacccgac tggctcatct gaccgccac ggcgtcagca
37601 ccagt gccc cgaaccggtc cccgacctag cccagccgc agtgtggggc
37651 ctgat ccga ggcgccaaaa cgaacacccc ggacgcttca cactgctcga
37701 caccgacgac aacaccaaca gcgacacct caccaccgcc ctaacctgc
37751 caacc cgcga aaaccaactg gccatacgcc gcgacaccat coacatccc
37801 cgcctgaccc gacacagcag tgacgggtgc ctactgcgc cgggtggtgt
37851 agatcctgag ggcacgggtg tgatcacccg ggggaccggg acgctgggtg
37901 cctgttcgc cgagcatctg gtttctgccc atggtgtccg gcctctgtg
37951 ttgacctcgc ggcgcggacc tcaggcccac ggtgccaccg atctgcagca
38001 gcggctcacc gatctaggtg ctcatgtcac catcacggcc tgcgatatca
38051 ggaaccccga agcactggcc gccctggtca attcagtgcc cacacaacac
38101 cgttt aaccg cggtagtgca caccgcgcg gtattggccg acaccccggt
38151 caccgagttg accggcgatc aactcgacca ggtgctggcc ccaaaatcg
38201 acgcggcatg gcagctgcac caactacct acgaacacaa cctgtctgca
38251 ttcat catgt tctcgtccat ggcgggaatg ataggcagtc ccggtcaggg
38301 taactacgcg gcagccaaca ccgcgttaga tgctctcgcc gactaccgcc
38351 accgcctggg cttgcccgcg accagcctgg cctggggcta ctggcagact
38401 cacac cggtc tcaccgcga tctaaccgat gtagatctag cccgatgac
38451 ccgcctgggt ttgatgcca tgcaccacag ccacggactg gccctgttcg
38501 atgccgccct cgccaccgga cagcccgttt cgataccgc cccgatcaac
38551 accca cacc tggcccga ca cccgcgac aacaccctgg cccgatcct
38601 gtctgcgctg atcaccacac cagggcgccg ggcggcctct gccgcaaccg
38651 atctcgtgc ccgcctcaac ggacttagcc ccaacagca acaaaaaa
38701 ctggccaccc tcgtggccgc ggccaccgcc accgtgctgg gccaccacac
38751 cccgaaaagc atcagccag ccaccgcgtt caaagacctc ggaatcgatt
38801 cgctgaccgc ccttgaactg cgcaacacc tcacccacaa caccggcctg
38851 gatctgcccc ccacctcat cttgatcac cccacacccc atgcggtggc
38901 cgagcatctg cttgaacaga tccctggcat cggtgccctg gtgcccgtc
38951 cggtggtgat cgcagctggt cgtaccgagg agccggtggc ggtggtggg
39001 atggcggtgc gtttcccgg tgggtgctga tcagcggatc agttgtggg
39051 cttggtgatc gctggccgtg atgtggtgg taattttccg gccgatcggg
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39151 acctacacc gttacggcgc gttccttgac gatgcggcag gttttgatgc
39201 cgggttcttt gggatctct caccggaggc acgcgcgatg gacccccagc
39251 agcggctgct gctggaggtg tgctgggaag cgctagaaac cgcgggtatt
39301 ccgcgcgaca ccttgccgg caccctcacc ggggtattcg ccggagcctg
39351 ggcccagtc tacggcgcca ccaactccga tgacgctgag gggatgcca
39401 tgaccggcgg ctcgactagc gtcattgtcc gccgatcgc ctacacctg
39451 gcctagaag gtcacgcat caccgttgac accgcctgct cgtcatcgt
39501 ggtggcaatt cacctggcct gccaatcct acgcaacaac gaatcccagc
39551 tagcactggc cggcgccgct accgtgatga gcacacctgc ggttttcacc

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FIGURE 6(continued)

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39601 gagttctccc gccaacgagg cctggcccca gatggagcgt gcaaagcctt
39651 cgccgctacc gccgatggca ccggctttgg tgaaggcgcc gcggtcttgg
39701 tcttgaacg gctctccgag gcccgccgca acaaccaccc ggtccttgcg
39751 atcgctcgct gatcgcgcat caaccaagac ggccgatcca acggactgac
39801 cgacccccac ggcccgtcac aacaacgcgt catcaaccaa gactagcca
39851 acgcccgcct caccacgac caggtcgacg ccgtcgaagc ccacggcacc
39901 ggccaccacac tgggtgaccc catcgaagcc agccccctac acgccaccta
39951 cggccaccac cacacgcccg atcaaccgct ttggtggga tccatcaaat
40001 ccaacatcgg ccacacccaa gccgcccggc gcgcccggc tgtggtcaag
40051 atgatccaag ccatacccca cgccaccttg ccgccacct tgcacgtcga
40101 ccaacccagc cccacatcgg actggtccag cggcacagtc cgactcctaa
40151 ccgagcccat ccaatggccc aacaccgacc acccccgcac cgcgccggtg
40201 tcttcattcg gcatcagcgg caccaacgcc cactcatcc tccaacaacc
40251 cccaccccc gacaccaccc aaaccccaa caccacaaca ggttctgac
40301 ccgacgtggg ttctgattcc gcagtggtg tactggtgtg gccgttgtca
40351 gcgctgtcag cgccggggtt aagcgcaaca gcggcccgtc tgtaccagca
40401 tctcagcgcc caccgcgac tggatccgat cgatgtagcc cacagcctgg
40451 ctaccacacg cagccaccac cccaccgcg ccaccatcac caccagcatt
40501 gagcaccaca gcgaaaaaaa ccacgacaca accgatgcgc tggccgcact
40551 gcacgcccct gccacaacac gcacacaccc cctgtcgagc agaggcctgc
40601 tgacccacac gggccccggc aaaacagtgt tcgtgttccc cggacagggc
40651 agtcaatacc ccgcatggg cgcatcttc taccgccaat tccccgtgtt
40701 cgccacgccc ctgcagcgt gcgacgcagc gttacagcct ttcactggat
40751 ggtcggtgct agctgtgtta cagcagcaac ccgaggcccc gtcgttggag
40801 ccggtcgatg tgggtccagcc tgtgtgttc tcggtgatgg tgcgttagc
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40951 gaagcagctg ccgtagtggc tttgcgcagc cgtgtcttga ccgacctggc
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41051 agctgctggc acggtgggac ggcaagatca ctgtccggc agttaacggc
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41251 gagctacccg agctgacacc gcggccatca accatcgca tgtattccac
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41351 ccgactactg gtaccgcaac atccgtaaca ctgtccggtt ccatgacact
41401 gtcgctgccc tgcctggggc ggggtgagcag gttttcctgg aactttcacc
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41501 gcggcgccgc agcagtcca gctctacgca aggatcgccc tgatgctgtc
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41601 ctggaatgtt ctttactgcc aggccggccc cctcacactg cccacctacg
41651 ctttcagca tcagcgttac tggctgtgc ccaccgctg tgatttcagc
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41751 ggccgaaaac cgcggtggg tgttcaccgg ccggtcagc ccacgcaccc
41801 aaccatggct aaacgaacac gccgtcgaat cagccgtgct gttcccaggc
41851 accgatttg tcgagctagc gctgcatgtc gctgaccgtg ccggtatttc
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41951 acaccgggga tctacagatc accgtcaccg acaccgatga catgggcccg
42001 cagtctctta acatccactc gcgcccacat atcgcccatg acaacaccac
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42101 ccgcacaaac caccgaccac aaccacctcc ccctaaccgc tgtgccgtgg
42151 cctcaccacc gcacagccgc gatcgaggtg gatgactct acgacgacct
42201 ggctgcacag ggctacaact acggcccgac attccaaggt gtgcaacgga
42251 tatggcgtga ccacgccaca cccgatgtca tctacgcga agttgaacta
42301 cccgaagaca ccgacatcga ccgctacggc atccacccc ccctattcga
42351 cgccgcttta caccctctac tcgcccgtg ccaaccccc accaaccgca
42401 ccgatgacac caacaccgca gacaccggtg accaggtgcg gctgccctac

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FIGURE 6(continued)

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42451 gcctttaccg gcatacagttt gcacgccacc cagccacccc gattacgggt
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42551 ccaccggagc cccgggtggcg atcatcgact cattgatcac ccgccccctc
42601 accaccgcca caggggtctgc tccggcaacc acagcagctg gcctactaca
42651 cctgagctgg ccaaccacacc ctgacaccac gaccgacacc gacaccgaca
42701 ccgatgccct gcggtatcag gtgatcgccg aacccactca acaactgccc
42751 cgctacctgc acgacctaca caccagcacc gacctgcaca ccagcaccac
42801 cgaagcagac gtgggtgtgt gccgggtacc ggtgccagc aacgaagagc
42851 tccaggcaca ccaagcatcc gacaccgagg tgtcttctcg gatacacacc
42901 ctgaccggcc aaacacttac cgtggtgcag gactggctca ctcaccccgga
42951 caccaccggc acccgactgg tcatcgtgac ccgccacggc gtcagcacca
43001 gtgcccacga cccgggtcccc gacctagccc acgccgcagt gtggggcctg
43051 atccgcagcg cccaaaacga acaccccgga cgcttcacac tgctcgacac
43101 cgacgacac accaacagcg acacccctac caccgcccta accctgcccac
43151 cccgcgaaaa ccaactggcc atacgcgcg acaccatcca catccccgc
43201 ctgaccggca ccgctgtcct gacaccaccg gacagcggcc cctggcgctt
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43301 cccacactgc cctggcctct ggacaaatcc gtatcgatgt ccgggcccgt
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43551 ggcccgggtg tcttcccccc aagccgcata cataccggtg gtattcctga
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43751 ggagcacctt tgaggcactg ggggtaccgc gcgaccatat cgcttcctcg
43801 cgtactctgg acttttccaa cgcattcctc gatgccacca acggcgccgg
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43951 atccgtgata ccgaggtcat cgccgcaacc catcccgcg tcatttaccg
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44101 actaattaca gcatacaca agccatctcg gccttacgtg acatgagtca
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44201 ctgagggcac ggtgttgatc accgggggga ccgggacgct gggcgcttg
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44301 ctgcggcgcg ggacctcagg cccacggtgc caccgatctg cagcagcggc
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44501 agttgaccgg cgatcaactc gaccaggtgc tggcccccac aatcgacggc
44551 gcatggcagc tgcacaaact cacctacgaa cacaacctgt ctgcattcat
44601 catgttctcg tccatggccg gaatgatagg cagtcccgtg cagggttaact
44651 acgcggcagc caacaccgcg ttagatgctc tcgccgacta ccgccaccgc
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44851 gccctcgcca ccggacagcc cgtttcgata cccgccccga tcaacaccca
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45051 caccctcgtg gccgcggcca ccgccaccgt gctggggcac cacaccccgc
45101 aaagcatcag cccagccacc gcgttcaaag acctcggaat cgattcgctg
45151 accgcccctg aactgcgcaa caccctcacc cacaacaccg gcctggtatc
45201 gcccccacc ctcattctcg atcaccac acccaccgcg ctaacccaac
45251 acctgcacac ccgactcacc accggtgccc tgggtgcggc tccggtggtg

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FIGURE 6(continued)

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 45401 tcgtcggcgg tgatgtggtg ggtaattttc cggccgatcg gggttgggat  
 45451 gtggcgggac tgtttgatcc cgatccggac gcggtcggca aaacctacac  
 45501 ccgttacggc gcgttccttg acgatgcggc aggttttgat gccgggttct  
 45551 ttgggatctc tccacgggag gcacgcgcga tggaccccca gcagcggctg  
 45601 ctgctggagg tgtgctggga agcgctagaa accgcgggta ttcccgcgca  
 45651 caccctggcc ggacacctca ccggggtatt cgtcggagcc ggggccagat  
 45701 cctacggcgc caccaactcc gatgacgtg aggggtatgc gatgaccggc  
 45751 ggcgcgatca gcgtcatgtc cggccgtatc gcctacacct tgggcctaga  
 45801 aggtccagcg atcaccgtt acaccgcctg ctgctcatcg ctggtggcaa  
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 45901 gccggcggcg tcaaccgtgat gagcacacct gcggttttca ccgatttctc  
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 46201 ctacccacag accaggtcga cgccgtcgaa gccacggca ccggcaccac  
 46251 actgggtgac cccatcgaa agcgcgccct acacgccacc tacggccacc  
 46301 accacacgcc cgatcaaccg ctttggctgg gatccatcaa atccaacatc  
 46351 ggccaacacc aagccgcggc cggcgccgac ggtgtggtca agatgatcca  
 46401 agccatcacc cagccacct tgcgcggcac cttgcacgtc gaccaaccca  
 46451 gcccacacat cgactggtcc agcggcacag tccgactcct aaccgagccc  
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 46551 cggcatcagc ggcaccaacg cccacctcat cctccaacaa cccccaccc  
 46601 ccgacaccac acaaaccccc aacccacaa caggttctga tcccgcagtg  
 46651 ggttctgatt ccgcagtggg ttctgatccc gcagtgggtg tactggtgtg  
 46701 gccgtgtcga gcgcgttcag cgccggggtt aagcgcaaaa gcggcccgct  
 46751 tgtaccagca tctcagcgcc caccocgatc tggatccgat cgatgtagcc  
 46801 cacagcctgg ctaccacacg cagccaccac cccacccgag ccaccatcac  
 46851 caccagcatt gagcaccaca gcgaaaacaa ccacgacaca accgatgcgc  
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 46951 agaggcctgc tgacccccaca gggcccccgc aaaacagtgt tctgttccc  
 47001 cggacagggc agtcaatacc ccggcatggg cgcagatctc tacggccaat  
 47051 tcccgtgttt cgccacgcgc ctcgacgagg tgcgtgcggc gctgaacccg  
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 47301 cgggtgtgctg tcaactgcaag acgcagccac cttggtcaca agccgaggac  
 47351 gactgatgca atcctgcacg cccggcggga cgatgctcgc actacaagcc  
 47401 agcgaagcag aagtacaacc gctgcttgaa ggccatagacc accgcgtgtc  
 47451 catgcgcggc atcaacggag caacgtcgat cgtactgtca ggagatcacg  
 47501 acagcctcga acaaatcggc gagcacttca ttaccaaga tgcaggtacc  
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 48051 tgatttcagc ggggccaata cccacgcat gcattcggct ctagacacgg  
 48101 ccaccgaact ggccgaaaac cgcggatggg tgttcaccgg ccgcatcagc

FIGURE 6(continued)

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48201 gttcccgaaac accggatttg tcgagctagc gctgcatgtc gctgaccgtg
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48501 tgtgccgtgg cctccaccgg gcacagccgc gatcgagggt gatgacttct
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49651 gggacgctgg gtgccttgtt cgccgagcat ctggtttctg cccatggtgt
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49751 ccgatctgca gcagcggctc accgatctag gtgctcatgt caccatcacg
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50651 ccaccgcgct aacccaacac ctgcacacc gactcacaca aattgagagc
50701 ccaaattccg aagactcgat gctgaacctt aaaaatttgg accgaattga
50751 atcatatatc ttcagaaatt cgggagaaga tcgagctcac gtaatcgcta
50801 atcgtttacg gtcaattctc tcgaaatggg atggcaccgg tagtccagaa
50851 ttacgtcgcg aactccatct tgaatcggca acagacgatg agctgttttc
50901 cctagcaaac atgttttcgca ctccaaccag cgaaatttca cctactctag
50951 aaggcggccg tgggtgtaac tga

```

FIGURE 6(continued)

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## MlsA2 gene

```

1   gtgggtgtcaa ctgaagaaaa cctacgcggt tacttaaaac aggtcatcac
51  agacctccac caaatgcagg cacgtctgcg gaagatcgaa aagcagagat
101 cagagcgggt ggcggtggtg gggatggcgt gtcgtttccc cgggtgtgtc
151 gcatcagcgg atcagttgtg ggacttggtg atcgctggcc gtgatgtggt
201 gggtaatttt cgggcgcatc ggggttgga tgtggaggga ctgtttgatc
251 ccgatccgga cgcggtcggc aaaacctaca cccgttacgg cgcgttcctt
301 gacgatgcgg caggttttga tgccgggttc tttgggatct ctccacggga
351 ggcacgcgcg atggaccccc agcagcggct gctgctggag gtgtgctggg
401 aagcgttaga aaccgcgggt attcccgcgc acaccttggc cggcacctcc
451 accggggtat tcgtcggagc ctgggcccag tcctacggcg ccaccaactc
501 cgatggcgct gagggttatg cgatgacggg cggctcgact agcgtcatgt
551 ccggccgtat cgcctacacc ttgggcctag aaggccagc gatcaccggt
601 gacaccgcct gctcgtcatc gctggtggca attcacctgg cctgccaatc
651 cttacgcaac aacgaatccc agctagcact ggccggcggc gtcaccgtga
701 tgagcacacc tgccggtttc accgagttct cccgccaacg cggcctggcc
751 ccagatggac ggtccatcgc cttcgcgct accgcgatg gcaccgctg
801 ggggtgaaggc gcgcggtct tggtccttga acggctctcc gaggcccgcc
851 gcaacaacca cccggtcctt gcgatcgtcg ctggatcggc gatcaaccaa
901 gacggcgcat ccaacggact gaccgcacc caccggccgt cacaacaacg
951 cgtcatcaac caagcactag ccaacgcgg cctcaccac gaccaggtcg
1001 acgccgtcga agccacggc accggcacca cactgggtga cccatcgaa
1051 gccagcgccc tacacgccac ctacggccac caccacagc ccgatcaacc
1101 gctttggctg ggatccatca aatccaacat cggccacacc caagccgcg
1151 ccggcgccgc cgggtgtggtc aagatgatcc aagccatcac ccacgccacc
1201 ttgcccgcca ccttgcaagt cgaccaaccc agccccaca tcgactggtc
1251 cagcggcaca gtccgactcc taaccgagcc catccaatgg cccaacaccg
1301 accacccccg caccgcggcg gtgtcctcat tcggcatcag cggcaccaac
1351 gcccacctca tcctccaaca accccccacc cccgacacca caaaaacccc
1401 caacaccaca acaggttotg atccgcagt gggttctgat tccgcagtgg
1451 gttctgatcc cgcagtggtg gtactggtgt ggccgttgtc agcgcgttca
1501 gcgcgggggt taagcgcaca agcggcccggt ctgtaccagc atctcagcgc
1551 ccaccccgat ctggatccga tcgatgtagc ccacagcctg gctaccacac
1601 gcagccacca ccccccacgc gccaccatca ccaccagcat tgagcaccac
1651 agcgaanaaa accacgacac aaccgatgcg ctggccgcac tgcacgcctt
1701 ggccaacaa ggcacacacc ccctgctgag cagaggcctg ctgacccac
1751 agggccccgg caaaaacagtg ttcgtgttcc ccggacaggg cagtcaatac
1801 cccggcatgg gcgcagatct ctaccgcaa tccccgtgt tcgcccacgc
1851 cctcgacgag gtccgtgagg cgtgaaccc gcattctgat gttgcgttgc
1901 ttgaggtgat gttcagccaa caagacactg ccatggcgca actgctggac
1951 cagaccttct atgcacaacc ggcgttggtc gcgctgggaa ccgctctaca
2001 tcgattgttc acccacgcgg gtatccaccc ggactacctg ctaggccact
2051 ccacgcgaga actcaccgcg gcatacgcgg ccggtgtgct gtcactgcaa
2101 gacgcagcca ctttggtcac aagccgagga cgactgatgc aatcctgcac
2151 gcccgggcgg acgatgctcg cactacaagc cagcgaagca gaagtacaac
2201 cgtgcttga aggcctagac caccgcgtgt ccatcgccgc gatcaacgga
2251 gcaacgtcga tcgtactgtc aggagatcac gacagcctcg aacaaatcgg
2301 cgagcacttc attaccaag atcgacgtac caccgcactg caggtcagtc
2351 acgctttcca ctctccacat atggacccca tcctcgaaca attccgccag
2401 atcgcgccc aactcacctt cagcgcaccc accctgcca tcttgccaa
2451 cctcacgggg cagatcgccc gccacgacca actcgctca cctgactatt
2501 ggacccaaca gctacgtaac actgtccgggt tccatgacac tgtcgtgccc
2551 ctgctcgggg cgggtgagca ggttttctct gaactttcac ctacccgggt
2601 gttgacacaa gcgatcaccg acaccgtcga acaagccggc ggcggcgggc
2651 cagcagtgcc agctctacgc aaggatcgcc ctgatgctgt cgcgttcgct

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FIGURE 7



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2701 gcagcactcg gccagctgca ctgccatggc atcagcccat cctggaatgt  
 2751 tctttactgc caggcccgcc ccctcacact gcccacctac gctttccagc  
 2801 atcagcggtta ctggctgctg cccaccgctg gtgatttcag cggggccaat  
 2851 acccagccca tgcacccgct gctagacacc gccaccgaac tggccgaaaa  
 2901 ccgcgatgg gtgttcacgg gccggatcag cccacgcacc caaccatggc  
 2951 taaacgaaca cgccgtcgaa tcagccgtgc tgttccagg caccggattt  
 3001 gtcgagctag cgctgcatgt cgctgaccgt gccggatatt cctcggtcaa  
 3051 cgaactgac gtgcacaccc ccctgctaact cgctggccac gacaccgagg  
 3101 atctacagat caccgtcacc gacaccgatg acatgggccc gacgtctctt  
 3151 aacatccact cgcacccaca tatcggccat gacaacacca ccaccggcga  
 3201 tgaacaaccc gagtgggtcc tgcattgccag cgagtcctg accgcacaaa  
 3251 ccaccgacca caaccacctc cccctaacgc ctgtgccgtg gcctccaccc  
 3301 ggcacagccg cgatcgaggt ggatgacttc tacgacgacc tggctgcaca  
 3351 gggctacaac tacggcccga cattccaagg tgtgcaacgg atatggcggtg  
 3401 accagccac acccgatgtc atctacgccc aagttgaact accggaagac  
 3451 accgacatcg accgctacgg catccaccoc gccctattcg acccgctttt  
 3501 acacccccca ctcgccctga cccaaccccc caccaacgac accgatgaca  
 3551 ccaacaccgc agacaccggt gaccaggtgc ggctgcccta cgcctttacc  
 3601 ggcacagtt tgcacgccac ccacgccacc cgattgcggg tacggctgac  
 3651 ccgtaccggc gccgatgcca tcaccgtgca caccagtgc accaccggag  
 3701 ccccggtggc gatcatcgac tcattgatca cccgccccct caccaccgcc  
 3751 acagggtctg ctccggcaac cacagcagct ggcctactac acctgagctg  
 3801 gccaccacac cctgcaccca cgaccgacac cgacaccgac accgatgccc  
 3851 tgcggtatca ggtgatcgcc gaaccactc aacaactgcc ccgctacctg  
 3901 cagcacctac acaccagcac cgacctgac accagacca ccgaagcaga  
 3951 cgtggttgtg tggccggtac cggtgcccag caacgaagag ctccaggcac  
 4001 accaagcatc cgacaccgcg gtgtcttctc ggatacacac cctgaccgcc  
 4051 caaacactta ccgtggtgca ggactggctc actcaccgcc acaccaccgg  
 4101 caccgactc gtcacgtga cccgccacgg cgtcagcacc agtgccacg  
 4151 acccggtccc cgacctagcc caccgcccag tgtggggcct gatccgagc  
 4201 gcccacaaag aacaccccg accgttcaca ctgctcgaca ccgacgacaa  
 4251 caccaacagc gacaccctca ccaccgccct aaccctgcca acccgcgaaa  
 4301 accaactggc catacgccgc gacaccatcc acatcccccg cctgaccgcc  
 4351 accgctgtcc tgacaccacc ggacagcgcc ccctggcgcc ttgacaccac  
 4401 cggcaagggt gatctggcca acctcgccct gctaccgacc gccacactg  
 4451 ccctggcctc tggacaaatc cgtatcgatg tccggggcgc tgggttgaat  
 4501 tttcagcagc tggctcgcgc gttggggcta atccccgacg accgattcgg  
 4551 cggagaagcc gccggggtga tcagcgagat cgggtcccgc gtctacggat  
 4601 tcgcccgtgg tgatgccgtg accggcatga ccgtctctgg tgcgtttgcc  
 4651 cccagcactg tcgctgatca ccgcatggtg atgacgatcc cggcccgtg  
 4701 gtccttcccc caagccgcat ccataccggt ggtattcctg accgcctaca  
 4751 tcgctttggc cgagatctcg ggcctaagcc gagggcaacg agtgctgatc  
 4801 catgcccggc ctggcggtgt gggatatgct gcgattcaat tggcacacca  
 4851 tttgggtgcc gaagtattcg ccaccgccag cgcgcgaaa tggagcacc  
 4901 ttgaggcact gggggtaccg cgcgaccata tcgcttcctc gcgtactctg  
 4951 gacttttcca acgcatctc cgatgccacc aacggcgccg gtgttgatgt  
 5001 cgtattgaac tgccctcagt gtgaattcgt cgaagcatcc ctagccctgc  
 5051 tgcccccgcg tggccatttc gtcgaaatcg gcaaaaccga catccgtgat  
 5101 accgaggtca tcgcccgaac ccaccccgcc gtcatttacc gcgccctcga  
 5151 tctgctcagc gtctcccccg atcacatcca gcgcacactg gcccaactgt  
 5201 cccactgtt tgccaccgac accctaaaac ccctaccgac cactaattac  
 5251 agcatctacc aagccatctc ggccttacgt gacatgagtc aagcccgta  
 5301 cacaggcaag atcgtgctca ctgcgcccgt ggtggtagat cctgagggca  
 5351 cgggtttgat caccgggggg accgggacgc tgggtgcctt gttcggcgag  
 5401 catctggttt ctgcccattg tgcgggcat ctgttgttga cctcgcgcg  
 5451 cggacctcag gccacgggtg ccaccgatct gcagcagcgg ctaccgatc  
 5501 taggtgctca tgtcaccatc accgcctgcg atatcagcga ccccgaaaga

FIGURE 7(continued)

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5551 ctggccgccc tggccaattc agtgcccaca caacaccgtt taaccgcggt
5601 agtgcacacc gccgcggtat tggccgacac cccggtcacc gagttgaccg
5651 gcgatcaact cgaccagggtg ctggccccc aatcgacgc ggcattggcag
5701 ctgcaccaac tcacctacga acacaacctg tctgcattca tcatgttctc
5751 gtccatggcc ggaatgatag gcagtcgccg tcagggtaac tacgcggcag
5801 ccaacaccgc gttagatgct ctgcgcgact accgccaccg cctgggcttg
5851 cccgcgacca gcctggcctg gggctactgg cagaccgcga ccggtgtcac
5901 cgcgcatcta accgatgtag atctagcccg catgaccgcg ctgggtttga
5951 tgcccatcgc caccagccac ggactggccc tgttcgatgc cgcctcgcg
6001 accggacagc ccgtttcgat accgcgcccg atcaacaccc acaccctggc
6051 ccgacacgcc cgcgacaaca ccctgacccc gatcctgtct gcgctgatca
6101 ccacaccacg gcgcggggcg gcctctgcg caaccgatct cgctgccgcg
6151 ctcaacggac ttagccccc aacagcaaca caaacactgg ccaccctcgt
6201 ggccgcggcc accgccaccg tgctgggcca ccacaccccc gaaagcatca
6251 gccagccac cggttcaaa gacctcgga tcgattcgct gaccgcctt
6301 gaactgcgca acaccctcac ccacaacacc ggcttgatc tgcccccac
6351 cctcatcttc gatcacccca caccatgc gctaaccaca cacctgcaca
6401 cccgactcac ccaaagccat acccggctcg gaccaattgc gtccctgcta
6451 agccacgca tcgatgaggg caaattccgt gccggcgctg acctattgat
6501 ggccgcatcc aatttgaacc aaagtctcag caatatggct gaactcaacc
6551 agtcccggc cgtgacggac atagctgacg cgtctcctga tgggctactc
6601 accctgatct gcctctctac ctacagagaat gactacgctc gcctcgctgc
6651 tgcgaacatt cattcactga ccttcgctga aattgcggcg ccggcctttt
6701 acgacgcgca gctgccaat tcgatagaga cgtcggcaga ggcgctggca
6751 actgccatca caggcgcta cgcaaatacg tccattgttc tggtagcgca
6801 ctccattgtc tgcgagctag ctacaggcaac gatgacacgt ctacaagacg
6851 ctgacatoga tcttgtgggt ctggttctgt tggatccact cgaagggact
6901 aacagcactg aagattatgt ggagacagtc ttgactcgaa tcgagcatat
6951 caatgcacg aggtcggag tagacggta ccttgccgcc ctgggcccgt
7001 atctccaatt ccacgaagac cgccgaatac caataccgga aacgcggcac
7051 atgacactgc actcggacac gaaaattgac cgtgcccaca caccaatgaa
7101 cttattacaa gatgaggcag cgttgaccgc cctcaaaata ggaaactgga
7151 tgaacgacac agggagtatc gcagtaacac tgagagatgg acccgattc
7201 ttgggcaggg cccgctctgt caacatgagg tga

```

FIGURE 7(continued)

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MlsB gene

```

1   gtgatcttcg gagatgctca ccaaaactgc aggggaggtc ggggtgttggg
51  tgatgcagtc gcagtggctc gaatgtcttg ccgggttcct ggcgcatctg
101 atccggacgc tctgtgggcg ctgctgcgag acgggatcag tgtggtcgat
151 gagatacctt ctgcacgttg gaatttagac ggctcgttg ctaccgcact
201 gaccgatgag caacgatcag cgcttcggca tggcgccttt cttgatgacg
251 tcgaagggtt tgacgcgcgc ttcttcggaa ttaaccctc cgaagctggg
301 tcgatggatc cgcagcaacg attgatgctt gaactgacct ggccagcact
351 cgaagatgct cgaatcgtgc cagaacatct ttccggtagc agtagcgggg
401 tgtttaccgg cgccatgagc gatgattaca cgaccgcggt gacctaccgc
451 gcagcgatga ctgcacatac ctttgcgggg actcaccgca gcctcatagc
501 caaccgtgtc toctacacac tcggtctacg cggacctagt ttggtcatcg
551 ataccgggca atcgtcctca ctggtggctg tgcaagtggc aatggaaagc
601 ttgcgcagag aagaaacttc acttgctatc gcgggtggta ttcaccttaa
651 cctcagcctc gcgcgcgcac tgagcgcagc acactttgga gccctttcac
701 ctgacggacg ctgctacacc ttgcgcgcac gtgccaacgg atacgttcgt
751 ggcgaaggcg gcggcgctcg cgtcctcaa cgtctcaacg acgccctagc
801 cgacggcaac catatttact gtgtgatccg cggcagctca gtcaacaacg
851 acggcgccac tcaagacttg acagcgcccg gactcgacgg ccagcgtcaa
901 gcgctccttc aagcttatga gcgagccgaa atcgaccctc cagaagtcca
951 atacgtcgag ctacatggca ccggcaccog actcggcgat cccaccgaag
1001 cccactcgct tcactcogtc ttccggcacat ccacggctcc gcgcagcccg
1051 ctgctagtcg ggtcaatcaa aaccaatata ggtcacctcg aaggcgccgc
1101 aggaatctc ggctaataca agactgccct tgccgttcac catcgccagc
1151 ttccccccag cctcaactac acggttccta acccaaaaat cccgctagag
1201 cagctagggc tccgcgtcca aaccactctc agtgaatggc cggacttaga
1251 caaaccgcta acggcgggcg tgtcatcttt ttccatgggt ggcaccaacg
1301 cccactcat cctccaacaa cccccaccc ccgacaccac acaaaccccc
1351 aacccccaaa caggttctga tcccgcagtg ggttctgato ccgcagtggg
1401 tgtaactggtg tggccgttgt cagcgcgttc agcgcggggg ttaagcgcac
1451 aagcggcccg tctgtaccag catctcagcg cccaccccgga tctggatccg
1501 atcgatgtag cccaagcct ggctaccaca cgcagccacc acccccaccg
1551 cgccaccatc accaccagca ttgagacca cagcgaanaa aaccacgaca
1601 caaccgatgc gctggccgca ctgcacgccc tggccaacaa cggcacacac
1651 cccctgctga gcagaggcct gctgacccca caggggcccg gcaaaacagt
1701 gttcgtgttc cccggacagg gcagtcaata ccccggcagc ggcgagatc
1751 tctaccgcca attccccgtg ttccgccacg cctcgcagca ggtcgtctcg
1801 gcgctgaacc cgcactctga tgttgcggtg cttgaggtga tgttcagcca
1851 acaagacact gccatggcgc aactgctgga ccagaccttc tatgcacaac
1901 cggcgttgtt cgcgctggga accgctctac atcgattgtt caccacgcc
1951 ggtatccacc cggactacct gctaggccac tccatcgag aactcaccgc
2001 ggcatagccc gcgggtgtgc tgtcactgca agacgcagcc accttggtca
2051 caagccgagg acgactgatg caatcctgca cggccggcgg gacgatgctc
2101 gactacaag ccagcgaagc agaagtacaa ccgctgcttg aaggcctaga
2151 ccacgcctg tccatcgccg cgatcaacgg agcaacgtcg atcgtactgt
2201 caggagatca cgacagcctc gaacaaatcg gcgagcactt cattacccaa
2251 gatcgacgta ccacccgact gcaggtcagt cagctttcc actctccaca
2301 tatggacccc atcctcgaac aattccgcca gatcgcgccc caactcacct
2351 tcagcgacac caccctgccc atcttgtcca acctcaccgg gcagatcgcc
2401 cgccacgacc aactcgctc acctgactat tggaccaaac agctacgtaa
2451 cactgtccgg ttccatgaca ctgtcgtctg cctgctcggg gcgggtgagc
2501 aggttttctt ggaactttca cctcaccggg tgttgacaca agcgatcacc
2551 gacaccgtcg aacaagccgg cggcgcgggc gcagcagtcg cagctctacg
2601 caaggatcgc cctgatgctg tcgcttcgc tgacgactc ggccagctgc
2651 actgccatgg catcagccca tcttggaatg ttctttactg ccaggcccg
2701 cccctcacac tgccaccta cgctttccag catcagcgtt actggctgct
2751 gccacccgct ggtgatttca gcggggccaa taccacgcc atgcatccgc

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FIGURE 8

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2801 tgctagacac cgccaccgaa ctggccgaaa accgcggatg ggtgttcacc
2851 ggccggatca gccacgcac ccaaccatgg ctaaaccgaac acgccgtcga
2901 atcagccgtg ctgttcccga acaccggatt tgtcgagcta gcgctgcatg
2951 tcgctgaccg tgccggatat tcctcggta acgaactgat cgtgcacacc
3001 cccctgctgc tcgctggcca cgacaccgcy gatctacaga tcaccgtcac
3051 cgacaccgat gacatgggcc ggcagtctct taacatccac tcgcaccac
3101 atatcggcca tgacaacacc accaccggcg atgaacaacc cgagtgggtc
3151 etgcatgcca gcgcagtcct gaccgcacaa accaccgacc acaaccacct
3201 cccctaaccg cctgtgccgt ggccctccacc cggcacagcc gcgatcgagg
3251 tggatgactt ctacgacgac ctggctgcac agggctacaa ctacggcccg
3301 acattccaag gtgtgcaacg gatatggcgt gaccacgcca caccgatgt
3351 catctacgcc gaagttgaac taccgaaga caccgacatc gacggctacg
3401 gcatccaccc cgccctattc gacgcgctt tacaccccct actcgccctg
3451 acccaacccc ccaccaacga caccgatgac accaaccacg cagacaccgg
3501 ggacagggtg cggctgccct acgcctttac cggcatcagt ttgcacgcca
3551 cccacgcccac ccgattgcgg gtacggctga cccgtaccgg cgcgatgcc
3601 atcaccgtgc acaccagtga caccacgga gcccgggtg cgatcatcga
3651 ctcatgtatc acccgcccc tcaccaccgc cacagggtct gctcgggcaa
3701 ccacagcagc tggcctaacta cacctgagct ggccaccaca cctgacacc
3751 acgaccgaca ccgacaccga caccgatgcc ctgccgtatc aggtgatcgc
3801 cgaaccact caacaactgc cccgtacct gcacgacct caaccagca
3851 ccgactgca caccgacc accgaagcag acgtggtgt gtggccggta
3901 ccggtgccc gcaacgaaga gctccaggca caccaagcat ccgacaccgc
3951 ggtgtcttct cggatacaca cctgacccg ccaaacactt accgtggtgc
4001 aggactggct cactacccc gacaccaccg gcacccgact ggtcatcgtg
4051 acccgccacg gcgtcagcac cagtgcacc gaccggctc ccgacctagc
4101 ccacgccgca gtgtggggcc tgatccgcag cgcacaaaac gaacaccccg
4151 gacgcttacc actgctcgac accgacgaca acaccaacag cgacaccctc
4201 ttcagtgccc taacctgcc aaccgcgaa aaccaactgg ccatacgccg
4251 cgacaccatc cacatcccc gcctgacccg acacagcagt gacggtgccg
4301 tcaactgcgc ggtggtggtg gatcctgagg gcacgggtgt gatcaccggg
4351 gggaccggga cgtgggtgc ctgttcgcc gagcatctgg tttctgcca
4401 tgggtgccc catctgttgt tgacctcgcg gcgcggacct caggccacg
4451 gtgccaccga tctgcagcag cggctcaccg atctagggtc tcatgtcacc
4501 atcacggcct gcgatatcag cgaccocgaa gcaactggcc cctggtcaa
4551 ttcagtgccc acacaacacc gttaacgcg ggtagtgcac accgcgcgg
4601 tattggccga cccccggtc accgagttga ccggcgatca actcgaccag
4651 gtgctggccc ccaaaatcga cgcggcatgg cagctgcacc aactcaccta
4701 cgaacacaac ctgtctgcat tcacatgtt ctctccatg gccggaatga
4751 taggcagtc ccgtcagggt aactacgcgg cagccaacac cgcgttagat
4801 gctctgcgc actaccgcca ccgctgggc ttgcccggga ccagcctggc
4851 ctggggctac tggcagactc acaccggtct caccgcgat ctaaccgatg
4901 tagatctagc ccgatgacc cgcctgggt tgaatcccat cgcaccagc
4951 caccgactgg cctgttcga tgccgcctc gccaccggac agcccgttc
5001 gataccgcc ccgatcaaca cccacacct ggcccgacac gcccgcgaca
5051 acaccctggc ccgatcctg tctgcgctga tcaccacac accgcgccgg
5101 gcgcctctg ccgcaaccga tctgcctgcc cgcctcaacg gacttagccc
5151 ccaacagcaa caacaacac tgccacctt cgtggccgg gccaccgcca
5201 ccgtgctggg ccaccaacac ccgaagca tcagcccagc caccgcgttc
5251 aaagacctcg gaatcgattc gctgacgccc cttgaactgc gcaacacctt
5301 caccacaac accggcctca accttcgtc cactcttatc ttcgatcacc
5351 ccacacccca tgcggtggcc gagcatctgc ttgaacagat ccctggcatc
5401 ggtgccctgg tgccggctcc ggtggtgatc gcagctggtc gtaccgagga
5451 gccggtggcg gtggtgggga tggcgtgtcg tttcccggg ggtgtcgcac
5501 cagcgatca gttgtgggac ttggtgatcg ctggccgtga tgtggtgggt
5551 aattttccgg ccgatcggg ttggatgtg gagggactgt ttgatccgga
5601 tccggacgcy gtcggcaaaa cctacaccg ttacggcgcg ttccttgacg

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FIGURE 8(continued)

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5651 atgcggcagg ttttgatgcc gggttctttg ggatctctcc acgggaggca
5701 cgcgcgatgg acccccagca gcggctgctg ctggaggtgt gctgggaagc
5751 gctagaaacc gcgggtattc ccgcgcacac cttggccggc acctccaccg
5801 gggatattcgt cggagcctgg gccacgtcct acggcgccac caactccgat
5851 gacgctgagg ggtatgcgat gaccggcggc gcgactagcg tcatgtccgg
5901 ccgtatcgcc tacaccttgg gcctagaagg tccagcgatc accgttgaca
5951 ccgcctgctc gtcatcgctg gtggcaattc acctggcctg ccaatcctta
6001 cgcaacaacg aatcccagct agcaactggc ggcgcgctca ccgtgatgag
6051 cacacctgcg gttttcaccg agttctcccg ccaacgcggc ctggccccag
6101 atggacgctg caaagccttc gccgctaccg ccgatggcac cggctggggg
6151 gaaggcgccg cggctcttgg ccttgaacgg ctctccgagg cccgccgcaa
6201 caaccacccg gtccctgcca tcgtcgctgg atcggcgatc aaccaagacg
6251 gcgcatacaa cggactgacc gcaccccacg gcccgtcaca acaacgcgtc
6301 atcaaccaag cactagccaa cgccggcctc acccagcacc aggtcgacgc
6351 cgtcgaagcc cacggcaccg gcaccacact gggtgacccc atcgaagcca
6401 gcgcccatac cgccaacctac ggccaccacc acacgcccga tcaaccgctt
6451 tggctgggat ccatacaatc caacatcggc cacaccgaag ccgcccggg
6501 cgccgcgggt gtggtcaaga tgatccaagc catcaccacg gccaccttgc
6551 ccgccacctt gcacgtcgac caacccagcc cccacatcga ctggtccagc
6601 gccacagtcg gactcctaac cgagcccacg caatggccca acaccgacca
6651 ccccgcgacc cggcggggtg cctcattcgg catcagcggc accaacgccc
6701 acctcactct ccaacaaccc cccaccctta accccacaca aacccccgag
6751 gactgcagcc ccgcacaatc tccctgcgca acaatcacgg atgcaggcac
6801 gggattatcg tttgtgccct gggtgatttc agcgaagtgc gctgaggcgt
6851 tgtctgcgca ggcgagccga ttgttgacgc gccttgacga tgatccagtt
6901 gtcgatgcaa tcgacctggg gtggtcattg atagccactc gatcgatgtt
6951 tgagcatcgc gcagtagttg tgggtgcgga tcgtcaccag ttgcagcgcg
7001 ggttgccgca gttggcttct ggtaaacttg gcgccgatgt agtggtgggc
7051 cgggcccgcg cagcgggcca gactgtaatg gtgtttcccg gtcagggatc
7101 acagcggttg ggcattggcg cgcagcttta tgaacaattc ccggtattcg
7151 cggcgcggtt tgatgacggt gttgatgcgc tggaccagta tctgcggttg
7201 ccgctacgcc aagttatgtg gggtgacgat gaaggcctgc tcaattcaac
7251 ggagttcgcc cagccgtcgt tgtttgctgt cgaggtcgca ctggttgctg
7301 tcgtgcgctt ctgggggtgc gttccggatt acgtgatagg ccattcggtg
7351 ggagagcttg ccgctgcaca agtggctggc gttttgagcc tgcaggacgc
7401 ggctaaatta gtttcagcgc ggggccgact gatgcaggcc ctgcccgcg
7451 gtggagcgat ggtcgcggtg gccgccagcc agcatgaagt cgagcctttg
7501 ctggttgaag ggtcgatat ccgcggcgtc aatgcgccag ggtcagttgt
7551 gatctctggt gatcaggcgg cagtccgttt gatcgcta atcgattggcg
7601 ataggggcta caggggcgac gaaacttgcg tttcgcatgc ctttcattca
7651 tcgttgatgg agccgatgtt ggaaggagtt gctcggtcgt cttctgaaat
7701 cgttgtggag caaccgcaga ttccactgat ttccaacgtg actggtcagc
7751 tggccaacgc cgaactacgg tcggcagggt actgggtgga ccacatccgc
7801 cgtccagtcg gtttcgcca tagtgtcgct tcgttggaag ccattggggg
7851 tagctgcttc attgaagtgc gtccagccag cgggttgggc gcagctatcg
7901 agcaatcctt gaaatctgcc gagccgacgg tgctagtgct ggcactgtcc
7951 accgataaac ctgaatccgt cgccgtattg cgcgctgcag cagcactttc
8001 cacctccggc attcctgtgg attggcagtc ggtgttcgac ggccgcagca
8051 ccagacaggt taacctgccc acctacgcct tccagcgcca acggttctgg
8101 ctcgacgcca accgtatcgg tcaaggcgat cccgccagtc aaccacaggc
8151 ccagaacggt gaatcccggt tttgggaggc ggtcgagcgg gaagacgttg
8201 atggtctggc tgattctata ggtgtcaccg ccagtgccat gcagaccgtg
8251 ctacctgcat tgtcttcatg gcgtcgcgcg gacgcacac agtccgagct
8301 tgattcctgg cgctatcagg tgacatggct gtcttcccca gcaacgccga
8351 gttcgatcac gctgtccggc atttggttgc tgatagttcc aagcgaactt
8401 gcaaagactg acccagtaat tggatgtgct gcagcgctcg aagcgacgg
8451 cgccttagtc acgattatca caattttcga gccggacttc aatcgctcat

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FIGURE 8(continued)

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8501  tgatgggccc  ttccctaaaa  gatatacggtt  cacacatata  tgggtgcata
8551  tcgttcttag  ggattcacgg  gtccgaattc  tccgatagcg  gcgcgggtcaa
8601  gacattaaat  cttgtgcaag  caatgggcga  tgtccactta  gacgttcctt
8651  tgtggtgcct  aacgcagggc  gcggtatcga  tcagcgccga  cgatttgatc
8701  cgatgctcgt  cagcagccct  ggtgtgggg  ctggggagag  tcgtcgcatt
8751  agagcaccgc  ggatcgtggg  gtggcttagt  agacctcccc  gagtacccgc
8801  acgatgcagc  atgggagcgc  ttgtgcgccc  tcctcgcgca  gccgacggat
8851  gaagatcagt  ttgcgatcag  gccgtctggg  gttttcctac  ggagattgat
8901  ccacgccccg  gcaaccacga  catccaaatc  ctcgaccgcg  tgggctccga
8951  gggggaccgt  gttaatcaca  ggccggcacag  gcgcgttagg  cgcacacgtc
9001  gcaaggtggt  tggccacaaa  atatgaatcg  gtagatttgc  tcttaaccag
9051  ccgtcgcggg  atggcagccg  atggagctac  agagctagtg  gatgacctcc
9101  gcacggctgg  cgccagtgtg  acagtgcacg  cctgcgacgt  gacagaccgc
9151  acttcagtcg  aggtctcaat  agcaggtaaa  tcccttgatg  cggcttttca
9201  tcttgacagg  cgacaccagc  caactctgct  aacagaactc  gaggacgaat
9251  cctttagtga  cgaattggcg  ccgaagggtc  acggtgcccc  agtattgagt
9301  gacatcacgt  ctaacctcac  actatcagcg  tttgtcatgt  tctcgtcagt
9351  agccggaatc  tggggcgcca  aaagtcaagg  cgcataatgt  gccgctaacc
9401  cattcttaga  ttgcgtcgcc  gagaaacggc  gcacgttggg  gttaccagca
9451  acatcggctc  cttggggact  gtgggctggc  ggccgcatgg  gagaccggcc
9501  atccgcttcg  ggactaaacc  ttattggctt  gaaatcgatg  tcagcagatt
9551  tagctgtgca  ggcgctaagc  gacgocattg  acagaccgca  agcaacattg
9601  actgttgcca  gcgtcaactg  ggatcggttc  taccacacat  tcgctttggc
9651  gcgaccgagg  cccttcctac  acgaaatcac  agaggtaatg  gcttaccgcg
9701  agtcgatgcg  ctcaagctct  gcacgcacgg  cgacgctcct  gacgagcaaa
9751  ttagccggac  taacggcgac  agaacagcgt  gcagtcaccc  ggaagtgggt
9801  ccttgatcaa  gccgcacccg  ttctcgggta  cgcctcaact  gagagtctcg
9851  atactcatga  gtcattcaaa  gacctcgat  ttgattcgct  gaccgocctt
9901  gaactgcgcg  accacctcca  aactgcgacc  ggccctcaacc  ttcgctccac
9951  tcttatcttc  gatcacccca  caccocatgc  ggtggccgag  catctgcttg
10001  aacagatccc  tggcatcggt  gccctggtgc  cggctcgggt  ggtgatcgca
10051  gctggtcgta  ccgaggagcc  ggtggcggtg  gtggggatgg  cgtgctggtt
10101  ccccggtggt  gtgcacatcg  cggatcagtt  gtgggacttg  gtgatcgctg
10151  gccgtgatgt  ggtgggtaat  tttccggccg  atcgggggtg  ggatgtggag
10201  ggaactgttg  atcccgatcc  ggacgcggtc  ggcaaaacct  acaccggtta
10251  cggcgcggtc  cttgacgatg  cggcagggtt  tgatgccggg  tcttttggga
10301  tctctccacg  ggaggcacgc  gcgatggacc  cccagcagcg  gctgctgctg
10351  gaggtgtgct  gggaagcgct  agaaaccgcg  ggtattcccg  cgcacacctt
10401  gccgggcacc  tccaccgggg  tattcgctcg  agcctggggc  cagtccctac
10451  gcgccaccaa  ctccgatgac  gctgaggggt  atgcgatgac  cggcggcgcg
10501  actagcgtca  tgtccggccg  tatcgccctc  accttgggcc  tagaaggctc
10551  agcgatcacc  gttgacaccg  cctgctcgtc  atcgctgggt  gcaattcacc
10601  tggcctgcca  atccttacgc  aacaacgaat  cccagctagc  actggccggc
10651  ggcgtcaccg  tgatgagcac  acctgcgggt  ttcaccgagt  tctcccgcga
10701  acgcggcctg  gccccagatg  gacgctgcaa  agccttcgco  gctaccgccc
10751  atggcaccgg  ctgggggtgaa  ggccgcggcg  tcttggctct  tgaacggctc
10801  tccgaggccc  gccgcaacaa  ccaccgggtc  cttgcgatcg  tcgctggatc
10851  ggcgatcaac  caagacggcg  catccaacgg  actgaccgca  cccacggccc
10901  cgtcacaaca  acgcgtcatc  aaccaagcac  tagccaacgc  cggcctcacc
10951  cagcaccagg  tcgacgcctg  cgaagcccac  ggcaccggca  ccacactggg
11001  tgaccccatc  gaagccagcg  ccctacacgc  cacctacggc  caccaccaca
11051  cgcccgatca  accgctttgg  ctgggatcca  tcaaatccaa  catcgcccac
11101  acccaagccg  ccgcggcgcg  cgccgggtgt  gtcaagatga  tccaagccat
11151  caccacgcgc  accttgcccg  ccaccttgca  cgtcgaccaa  cccagcccc
11201  acatcgactg  gtccagcggc  acagtccgac  tcctaaccga  gcccatccaa
11251  tggcccaaca  ccgaccaccc  ccgaccgcg  gcggtgtcct  cattcgccat
11301  cagcggcacc  aacgcccacc  tcctcctcca  acaaccccc  acccctaacc

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FIGURE 8(continued)

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11351 ccacacaaac ccccgaggac tgcagcccg cacaatctcc ctgcgcaaca
11401 atcaccgatg caggcacggg attatcggtt gtgccctggg tgatttcagc
11451 gaagtcggct gaggcggtgt ctgcgcaggg gagccgattg ttgacgcgcc
11501 ttgacgatga tccagttgtc gatgcaatcg acctgggggtg gtcatgtata
11551 gccactcgat cgatgtttga gcatcgcgca gtagttgtgg gtgcggatcg
11601 tcaccagttg cagcgcggtt tggccgagtt ggcttctggt aacttgggcg
11651 ccgatgtagt ggtgggcccg gcccgcgag cgggcgagac tgtaatggtg
11701 tttcccggtc agggatcaca gcggttgggc atgggcgcgc agctttatga
11751 acaattcccc gtattcgcgg cggcggttga tgacgttgtt gatgcgctgg
11801 accagtatct gcggttgccg ctacgccaag ttatgtgggg tgacgatgaa
11851 ggctgctca attcaacgga gttcgcccg ccgtcggtgt ttgctgtcga
11901 ggtcgactg tttgcgttgc tgcgcttctg ggtgtcggtt ccggattacg
11951 tgataggcca ttcggttaga gagctggccg ctgcacaagt ggtcggcggt
12001 ttgagcctgc aggacgcggc taaattagtt tcagcgcggg gccgactgat
12051 gcaggccctg cccgcgggtg gagcgatggt cgcggtagcc gccagccagc
12101 atgaagtcga gcctttgctg gttgaagggg tcgatatcgc ggcgctcaat
12151 gcgccagggt cagttgtgat ctctggtgat caggcggcag tccgtttgat
12201 cgtaaatcga ttggcggata ggggctacag ggcgacgaa ctgcgggtt
12251 cgcattgctt tcatctatcg ttgatggagc cgatgttga ggagttcgct
12301 cggctcgctt ctgaaatcgt tgtggagcaa ccgcagattc cactgatttc
12351 gaacgtgact ggtcagctgg ccaacgcga ctacgggtcg gcaggttact
12401 ggttggacca catccgcgt ccagtcggt tcgcgcatag tgcgcttcg
12451 ttggaagcca tgggggctag ctgcttcatt gaagtcggtc cagccagcgg
12501 gttgggcgca gctatcgagc aatccttgaa atctgcgag ccgaccgtgt
12551 cagtgtcggc actgtccacc gataaacctg aatccgtcgc cgtattgcgc
12601 gctgcagcac gactttccac ctccggcatt cctgtggatt ggagtcggt
12651 gttcgacggc cgcagcacc agacagttaa cctgccacc tacgccttcc
12701 agcggcaacg gttctggctc gacgccaacc gtatcggtca aggcgatccc
12751 gccagtcacac cagggccca gaacgttgaa tcccgttttt gggaggcggg
12801 cgagcgggaa gacgttgatg gcttggctga ttctataggt gtcaccgcca
12851 gtgccatgca gaccgtgcta cctgcattgt cttcatggcg tcgcgaggag
12901 cgacacagct ccgagcttga ttccctggcg tatcaggtga catggctgtc
12951 tccccagca acgcgcaggt cgatcacgct gtccggcatt tggttgctga
13001 tagttccaag cgaacttgca aagactgacc cagtaattgg atgtgctgca
13051 gcgtcgaaag cgcacggcgc cttagtcacg attatcaca ttttcgagcc
13101 ggaactcaat cgctcattga tgggcgcttc cctaaaagat atcgggtcac
13151 acatatctgg tgtcatatcg ttcttaggga ttacgggtc cgaattctcc
13201 gatagcggcg cgtcaagac attaaatctt gtgcaagcaa tggcgatgt
13251 caacttagac gttcctttgt ggtgcctaac gcaggcgcg gtatcgatca
13301 gcgcgacga tttgatccga tgcctgctag cagccctggt gtggggtctg
13351 gggagagtcg tcgcattaga gcaccggga tcgtggggtg gcttagtaga
13401 cctccccgag tcaccogacg atgcagcat ggagcgcttg tgcgccctcc
13451 tcgcgcagcc gacggatgaa gatcagttt cgatcaggcc gtctggggtt
13501 ttccctacga gattgatcca cgcgccggca accacgacat ccaaatectc
13551 gaccgcgtgg gctccgaggg ggaccgtgtt aatcacaggc ggcacaggcg
13601 cgtaggcgc acacgtcgca aggtggttgg ccacaaaata tgaatcggt
13651 gatttgctct taaccagcgc tcgcgggatg gcagccgatg gagctacaga
13701 gctagtggat gacctcgca cggctggcgc cagtgtgaca gtgcagcct
13751 gcgacgtgac agaccgcact tcagtcgagg ctgcaatagc aggtaaatcc
13801 cttgatgcgg tctttcatct tgcaggacga caccagccaa ctctgctaac
13851 agaactcgag gacgaatcct ttagtgacga attggcgccg aaggttcacg
13901 gtgccaagt attgagtgac atcacgtcta acctcacact atcagcggtt
13951 gtcattgtct cgctcagtagc cggaatctgg ggcggcaaaa gtcaaggcgc
14001 atatgctgcc gctaacgcgt tcttagatcc gctcgccgag aaacggcgca
14051 cggtgggggt accagcaaca tcggctcgctt ggggactgtg ggtcggcgcc
14101 ggcattgggag accggccatc cgcttcggga ctaaacctta ttggcttgaa
14151 atcgatgtca gcagatttag ctgtgcaggg gctaagcgac gccattgaca

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FIGURE 8(continued)

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14201 gaccgcaagc aacattgact gttgcgagcg tcaactggga tcggttctac
14251 cccacattcg ctttggcgcg accgaggccc ttcttacacg aaatcacaga
14301 ggtaatggct taccgcgagc cgatgcgctc gagctctgca tcgacggcga
14351 cgctcctgac gagcaaatta gccggactaa cggcgacaga acagcgtgca
14401 gtcacccgga agttggctct tgatcaagcc gcatccgttc tcgggtacgc
14451 ctcaactgag agtctcgata ctcatgagtc attcaaagac ctcggtattg
14501 attcgctgac cgcccttgaa ctgcgcgacc acctccaaac tgcgaccggc
14551 ctcaaccttt cgtccactct tatcttcgat caccaccacac cccatgcggt
14601 ggccgagcat ctgcttgaac agatccctgg catcggtgcc ctggtgccgg
14651 ctccggtggg gatcgagct ggtcgtaccg aggagccggt ggcggtgggtg
14701 gggatggcgt gtcgtttccc cgggtggtgc gcatcagcgg atcagttgtg
14751 ggacttggtg atcgctggcc gtgatgtggt gggtaatttt ccggccgac
14801 ggggttggga tgtggaggga ctgtttgatc ccgatccgga cgggttcggc
14851 aaaacctaca cccgttacgg cgcgttcctt gacgatgcgg caggttttga
14901 tgcgggttc tttgggatct ctccacggga ggacgcgcg atggaccccc
14951 agcagcgct gctgctggag gtgtgctggg aagcgctaga aaccgcgggt
15001 attcccgcg acacctggc cggcacctcc accggggtat tcgtcggagc
15051 ctgggcccag tctacggcg ccaccaactc cgatgacgct gaggggtatg
15101 cgatgaccgg cggcgcgatc agcgtcatgt ccggccgtat cgcctacacc
15151 ttgggcttag aaggtccagc gatcacctgt gacaccgcct gctcgtcatc
15201 gctggtggca attcacctgg cctgccaatc cttacgcaac aacgaatccc
15251 agctagcact gaccggcggc gtcaccgtga tgagcacacc tgcgattttc
15301 accgagttct cccgccaaac cggcctggcc ccagatggac gctgcaaage
15351 cttcgcccgt accgcgcatg gcaccggctg gggtaaggc gccgcggtct
15401 tggctcctga acggctctcc gaggccggcc gcaacaacca cccggtcctt
15451 gcgatcgctg ctggatcggc gatcaaccaa gacggcgcat ccaacggact
15501 gaccgcaccc caccggccgt cacaacaacg cgtcatcaac caagcactag
15551 ccaacgccgg cctcaccac gaccaggtcg acgcgctcga agcccacggc
15601 accggcacca cactgggtga cccatcgaa gccagcgccc tacacgccac
15651 ctacggccac caccacacg ccgatcaacc gctttggctg ggatccatca
15701 aatccaacat cggccacacc caagccgccc ccggcgccgc cgggtgtggtc
15751 aagatgatcc aagccatcac ccacgccacc ttgcccgcca ccttgacgt
15801 cgaccaaccc agccccaca tcgactggtc cagcggcaca gtcggactcc
15851 taaccgagcc catccaatgg cccaacaccg accacccccg caccgcggcg
15901 gtgtcctcat tcggcatcag cggcaccaac gcccaactca tcctccaaca
15951 accccccacc cccgacacca cacaaccccc caacaccaca acaggttctg
16001 atcccgagc gggttctgat cccgcagtg gtgtaactgt gtggccgttg
16051 tcagcgcggt cagcgccggg gttaagcgca caagcggccc gtctgtacca
16101 gcatctcagc gccaccccg atctggatcc gatcgatgta gccacagcc
16151 tggctaccac acgcagccac caccccacc gcgccaccat caccaccagc
16201 attgagcacc acagcgaaaa caaccacgac acaaccgatg cgtggccgc
16251 actgcacgcc ctggccaaca acggcacaca cccctgtgtg agcagaggcc
16301 tgcgtacccc acagggcccc ggcaaaacag tgttcgtgtt ccccgacag
16351 ggcagtcaat accccggcat gggcgagat ctctaccgcc aattccccgt
16401 gttegccacc gccctcgacg catgcgacgc agcgttacag ctttctactg
16451 gatggtcggt gctagctgtg ttacacgacg aacccgaggc cccgtcggtg
16501 gagcgagtcg atgtgggtcca gcctgtgttg ttctcggtga tgggtgcgtt
16551 agccgcactc tggcggtggg ccggaatcac ccccgatgca gtcacggcc
16601 actcccaggc cgagatcgcc gcggcacatg tggccggagc cctgaccttg
16651 cccgaagcag ctgcggtagt ggctttgcgc agccgtgtct tgaccacct
16701 ggccggtgcc ggtgccatgg cttcagtgct atcgcccag gaaccactga
16751 cccagctgct ggcacggtgg gacggcaaga tcaactgtgc cgcagttaac
16801 ggccccgcta gcgctgtggt ctccggcgat accacagcga tcaccgaatt
16851 gctgattacc tgcgaacacg aaaaatcgca cgctcgcgct atcccgttg
16901 actacccctc tcattcccc tataatggaac acatccgcca tcagttcctc
16951 gacgagctac ccgagctgac accgcggcca tcaaccatcg cgatgtattc
17001 caccgtcgac ggcgaacctc acgacaccgc ctacgacacc accacaatga

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FIGURE 8(continued)



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17051 ccgcggaacta ctggtaccgc aacatccgta acaactgtccg gttccatgac
17101 actgtcgctg ccctgtctcg ggcgggtgag caggttttcc tggaaactttc
17151 acctcaccgc gtgttgacac aagcgatcac cgacaaccgtc gaacaagccg
17201 gcggcggcgg cgcagcagtg ccagctctac gcaaggatcg ccctgatgct
17251 gtcgcgttcg ctgcagcact cggccagctg cactgccatg gcatcagccc
17301 atcctggaat gttctttact gccaggcccg cccctcaca ctgccacct
17351 acgctttcca gcatcagcgt tactggctgc tgcccaccgc tgggtatttc
17401 agcggggcca ataccacgc catgcatccg ctgctagaca ccgccaccga
17451 actggccgaa aaccgcggat ggggtttcac cggccggatc agcccacgca
17501 cccaaccatg gctaaacgaa cacgccgtcg aatcagccgt gctgttccca
17551 ggcaccggat ttgtcgagct agcgtgcat gtgcgtgacc gtgccggata
17601 ttctctggtc aacgaactga tcgtgcacac cccctgtctg ctgcgtggcc
17651 acaccaccgc ggatctacag atcaccgtca ccgacaccga tgacatgggc
17701 cggcagtctc ttaacatcca ctgcgcacca catatcgcc atgacaacac
17751 caccaccggc gatgaacaac ccgagtgggt cctgcatgcc agcgcagtcc
17801 tgaccgcaca aaccaccgac cacaaccacc tccccctaac gcctgtgccg
17851 tggcctccac ccggcacagc cgcgatcgag gtggaagact tctacgacga
17901 cctggctgca cagggtctaca actacggccc gacattccaa ggtgtgcaac
17951 ggatatggcg tgaccacgcc acaccgatg tcatctacgc cgaagttgaa
18001 ctaccgcgaag acaccgacat cgacggctac ggcatccacc ccgcctatt
18051 cgacgcgctt ttacaccccc tactcgccct gacccaaccc cccaccaacg
18101 acaccgatga caccaaacacc gcagacaccg gtgaccagggt gcggctgccc
18151 tacgccttta ccggcatcag tttgcacgcc acccaccgca cccgattacg
18201 ggtacggctg acccgtaaccg gcgcgatgc catcacgctg cacaccagtg
18251 acaccaccgg agcccgggtg gcgatcatcg actcattgat caccgcccc
18301 ctaccaccgg ccacagggtc tgctccggca accacagcag ctggcctact
18351 acaccctgagc tgccaccac accctgacac cagcacgac accgacaccg
18401 acaccgatgc cctgcggtat cagggtgatc ccgaaaccc tcaacaactg
18451 ccccgctacc tgacgacct acacaccagc accgacctgc acaccagcac
18501 caccgaagca gacgtggttg tgtggcgggt accggtgccc agcaacgaag
18551 agctccagga acaccaagca tccgacaccg cgggtgtctc tcggatacac
18601 accctgaccc gccaaacact tacctgggtg caggactggc tcaactaccc
18651 cgacaccacc ggaccccgac tggatcatct gaccgccacc ggctgcagca
18701 ccagtgcaca cgaccgggtc cccgacctag cccacgcgc agtgtgggc
18751 ctgatccgca gcgccccaaa cgaacacccc ggacgcttca cactgctcga
18801 caccgacgac aacaccaaca gcgacacct caccaaccgc ctaaccctgc
18851 caaccgcgca aaaccaactg gccatacgcc gcgacacat ccacatccc
18901 cgctgaccc gacacagcag tgacgggtgc ctactgggc cgggtggtgt
18951 agatcctgag ggcacggtgt tgatcacccg ggggacggg acgctgggtg
19001 cctgttctgc cgagcatctg gtttctgccc atggtgtccg gcatctgttg
19051 ttgacctcgc ggccgggacc tcaggccacc ggtgcaccg atctgcagca
19101 gcggctcacc gatctagggt ctcatgtcac catcacggcc tgcgatatca
19151 gcgacccgca agcactggcc gccctggtca attcagtgc cacacaacac
19201 cgtttaaccg cgttagtgca caccgcgcg gtattggcc acaccgggt
19251 caccgagttg accggcgatc aactcgacca ggtgtggcc cccaaaatcg
19301 acgcggcatg gcagctgcac caactcacct acgaaacaa cctgtctgca
19351 ttcacatgtg tctcgtccat ggcgggaatg ataggcagtc ccggtcaggg
19401 taactacgcg gcagccaaca ccgcgttaga tgctctgcc gactaccgcc
19451 accgcctggg cttgccgcg accagcctgg cctggggcta ctggcagact
19501 cacaccggtc tcaccgcgca tctaaccgat gtagatctag cccgcatgac
19551 ccgcctgggt ttgatgcccc tcgccaccag ccacggactg gccctgttcg
19601 atgccgccct cgccaccgga cagcccgttt cgataccgc cccgatcaac
19651 acccacaccc tggcccgaca cgcccgcgac aacacccctg ccccgatcct
19701 gctgcgctg atcaccacac cagggcgccg ggcggcctct gccgcaaccg
19751 atctcgctgc ccgcctcaac ggacttagcc cccaaacgca acaacaacaa
19801 ctggccaccc tcgtggccgc ggccaccgcc accgtgctgg gccaccacac
19851 ccccgaaagc atcagccag ccaccgcgtt caaagacctc ggaatcgatt

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FIGURE 8(continued)

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19901 cgctgaccgc ccttgaactg cgcaacaccc tcacccacaa caccggcctg
19951 gatctgcccc ccaccctcat ctctgatcac ccacaccccc atgcggtggc
20001 cgagcatctg cttgaacaga tccttggcat cggtgccctg gtgccggctc
20051 cgggtggtgat cgagctggt cgtaaccgag agccggtggc ggtggtgggg
20101 atggcggtgc gtttccccgg ttgtgtcgca tcagcggatc agttgtggga
20151 cttggtgatc gctggccgtg atgtggtggg taattttcgg gccgatcggg
20201 gttgggagtgt ggagggactg tttgatcccg atccggacgc ggtcggaaca
20251 acctacaccc gttacggcgc gttccttgac gatcgggcag gttttgatgc
20301 cgggttcttt gggatctctc cacgggaggc acgcgcgatg gacccccagc
20351 agcggctgct gctggagggt tgctgggaag cgctagaaac cgcgggtatt
20401 cccgcgcaca ccttggccgg cactccaccc ggggtattcg ccggagcctg
20451 ggcccagtcc tacggcgcca ccaactccga tgacgctgag gggatgcca
20501 tgaccggcgg ctgactagc gtcatgtccg gccgatcgc ctacaccttg
20551 ggccctagaag gtccagcgat caccgttgac accgcctgct cgtcatcgct
20601 ggtggcaatt cacctggcct gccaatcctt acgcaacaac gaatcccagc
20651 tagcactggc cggcggcgtc accgtgatga gcacacctgc ggttttcacc
20701 gagttctccc gccaacgcgg cctggcccac gatggacgct gcaaagcctt
20751 cgccgctacc gccgatggca ccggctttgg tgaaggcgcc gcggtcttgg
20801 tccttgaacg gctctcggag gcccgccgca acaaccaccc ggtccttgcg
20851 atcgctcgct gatcggcgat caaccaagac ggcgcatcca acggactgac
20901 cgcaccccac ggcccgctac aacaacgcgt catcaacca gactagcca
20951 acgcccgcct caccacgcag caggctgacg ccgtcgaagc ccacggcacc
21001 ggcaccacac tgggtgacct catcgaagcc agcgccctac acgccacctc
21051 cggccaccac cacacgccc atcaaccgct ttggctggga tccatcaaat
21101 ccaacatcgg ccacacccaa gccgcgcggc gcgccgcggc tgtggtcaag
21151 atgatccaag ccatacccca cgccaccttg cccgccacct tgacgtcga
21201 ccaacccagc ccccatctcg actggtccag cggcacagtc cgactcctaa
21251 ccgagcccat ccaatggccc aacaccgacc acccccgcac cgcggcggtg
21301 tcctcattcg gcatcagcgg caccaacgcc cactcatcc tccaacaacc
21351 cccccacccc gacaccacac aaacccccaa cccacaaca ggttctgac
21401 ccgagtggtg ttctgatccc gcagtggtg tactggtgtg gccgttgtca
21451 gcgcgttcag cgcgggggtt aagcgcacaa gcggcccgtc tgtaccagca
21501 tctcagcgcc caccocgatc tggatccgat cgatgtagcc cacagcctgg
21551 ctaccacagc cagccaccac cccaccgcgg ccaccatcac caccagcatt
21601 gagcaccaca gcgaaaacaa ccacgacaca accgatgcgc tggccgcact
21651 gcacgccctg gccaaacaac gcacacaccc cctgctgagc agaggcctgc
21701 tgaccccaca gggcccggcg aaaacagtgt tcgtgttccc cggacagggc
21751 agtcaatacc ccggcatggg cgcagatctc taccgccaat tcccgtgtt
21801 cgcacacgcc ctgcagcagg tcgctgcggc gctgaacccg catctcgatg
21851 ttgcgttgct tgaggtgatg ttcagccaac aagacactgc catggcgcaa
21901 ctgctggacc agaccttcta tgcacaaccg gcgttggtcg cgtgggaac
21951 cgctctacat cgattgttca cccacgcggg tatccaccgg gactacctgc
22001 taggccaact catcggagaa ctacccgcgg catacgcgcg cgggtgtgctg
22051 tcactgcaag acgcagccac cttggtcaca agccgaggac gactgatgca
22101 atcctgcacg cccggcggga cgatgctcgc actacaagcc agcgaagcag
22151 aagtacaacc gctgcttgaa ggccatagac acgcgctgtc catcgccgcg
22201 atcaacggag caacgtcgat cgtactgtca ggagatcacg acagcctcga
22251 acaaatcggc gagcattca ttacccaaga tcgacgtacc acccgactgc
22301 aggtcagtca cgctttccac tctccacata tggaccccat cctcgaacaa
22351 ttccgccaga tcggggccca actcaccttc agcgcaccca cctgcccatt
22401 cttgtccaac ctacccgggc agatcgcccg ccacgaccaa ctgcctcac
22451 ctgactattg gacccaacag ctacgtaaca ctgtccggtt ccattgacct
22501 gtcgctgccc tgctcggggc gggtagcag gttttcctgg aactttcacc
22551 tcacccgggtg ttgacacaag cgatcaccca caccgtcgaa caagccggcg
22601 gcggcggcgc agcagtgcga gctctacgca aggatcgccc tgatgctgtc
22651 gcgttcgctg cagcactcgg ccagctgcac tgccatggca tcagcccatc
22701 ctggaatggt ctttactgcc aggccgcgcc cctcacactg cccacctacg

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FIGURE 8(continued)

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22751 ctttcagca tcagcgttac tggctgctgc ccaccgctgg tgatttcagc  
 22801 ggggccaata cccacgccat gcatccgctg ctagacaccg ccaccgaact  
 22851 ggccgaaaac cgcggtatggg tgttcaccgg ccggtacagc ccacgcaccc  
 22901 aaccatggct aaacgaacac gccgtcgaat cagccgtgct gttcccaggc  
 22951 accggatttg tcgagctagc gctgcatgtc gctgaccgtg ccggtatctc  
 23001 ctccgtcaac gaactgatcg tgcacacccc cctgctgctc gctggccacg  
 23051 acaccgcgga tctacagatc accgtcaccg acaccgatga catgggcccg  
 23101 cagtctctta acatccactc gcgccacat atcggccatg acaacaccac  
 23151 caccggcgat gaacaaccgg agtgggtcct gcatgccagc gcagtctga  
 23201 ccgcacaaac caccgaccac aaccacctcc ccctaaccgc tgtgccgtgg  
 23251 cctccacccg gcacagccgc gatcgagggt gatgacttct acgacgacct  
 23301 ggctgcacag ggctacaact acggcccgc acctcaagggt gtgcaacgga  
 23351 tatggcgtga ccacgccaca ccggtatgta tctacgccga agttgaacta  
 23401 ccggaagaca ccgacatcga cggctacggc atccaccccg ccctattcga  
 23451 cgccgcttta caccocctac tcgccctgac ccaacccccc accaaccgaca  
 23501 ccgatgacac caacaccgca gacaccggtg accaggtgag gctgccctac  
 23551 gcctttaccg gcatcagttt gcacgccacc cagccacccc gattgcgggt  
 23601 accgctgacc cgtaccggcg ccgatgccat caccgtgcac accagtgaac  
 23651 ccaccggagc ccgggtggcg atcatcgact cattgatcac ccgccccctc  
 23701 accaccgcca cagggtctgc tcgggcaacc acagcagctg gcctactaca  
 23751 cctgcgctgg ccaccacacc ctgacaccac gaccgacacc gacaccgaca  
 23801 ccgatgccct gcggtatcag gtgatcgccg aaccactca acaactgcc  
 23851 cgtacctgc acgacctaca caccagcacc gacctgcaca ccagcaccac  
 23901 cgaagcagac gtggttgtgt ggccggtacc ggtgccagc aacgaagagc  
 23951 tccaggcaca ccaagcatcc gacaccggcg tgtcttctcg gatacacacc  
 24001 ctgacccgcc aaacacttac cgtggtgcag gactggctca ctcaccccca  
 24051 caccaccggc acccgactgg tcatcgtgac ccgccacggc gtcagcacca  
 24101 gtgcccacga ccggtccccc gacctagccc acgcccagc gtggggcctg  
 24151 atccgcagcg cccaaaacga acaccocgga cgcttcacac tgctcgacac  
 24201 cgacgacaac accaacagcg acaccctcac caccgcccta accctgccaa  
 24251 ccgcgaaaaa ccaactggcc atacgcgcg acaccatcca catccccgc  
 24301 ctgacccgac acagcagtgga cgggtcgctc actgcgcggg tgggtgtaga  
 24351 tcttgagggc acggtgttga tcaccggggg gaccgggacg ctgggtgcct  
 24401 tgttcgccga gcatctggtt tctgccatg gtgtccggca tctgtgtgtg  
 24451 acctccggcg ccggacctca ggcccacggg gccaccgata tgcagcagcg  
 24501 gctcaccgat ctagggtgctc atgtcaccat caccggcctg gatatacgcg  
 24551 accccgaagc actggccgcc ctggtcaatt cagtgcacac acaacaccgt  
 24601 ttaaccgcgg tagtgacac ccgcgcggtt ttggccgaca ccccggtcac  
 24651 cgagttgacc ggcgatcaac tcgaccagggt gctggcccc aaaatcgacg  
 24701 cggcatggca gctgcaccaa ctcacctacg aacacaacct gtctgcattc  
 24751 atcatgttct cgtccatggc cggatgata ggagtcocg gtcagggtaa  
 24801 ctacgcggga gccaacaccg cgttagatgc tctcgccgac taccgccacc  
 24851 gcctgggctt gccgcgaccc agcctggcct ggggctactg gcagactcac  
 24901 accggtctca ccgcgcctct aaccgatgta gatctagccc gcatgaccgg  
 24951 cctgggtttg atgcccacgc ccaccagcca cggactggcc ctggtcgatg  
 25001 ccgcctcgc caccggacag ccggtttcga taccgcccc gatcaacacc  
 25051 cacaccctgg ccgcacacgc ccgcgacaac accctggccc cgatcctgtc  
 25101 tggcgtgatc accacaccac ggccgcgggc ggccctctgc gcaaccgac  
 25151 tcgctgcccg cctcaacgga cttagcccc aacagcaaca acaaacactg  
 25201 gccaccctcg tggcgcgggc caccgccacc gtgctggggc accacacccc  
 25251 cgaaagcatc agcccagcca ccgcgttcaa agacctcgga atcgattcgc  
 25301 tgaccgccct tgaactgcgc aacaccctca cccacaacac cggcctggat  
 25351 ctgcccccca cctcatctt cgatcacccc acaccccatg cgggtggcga  
 25401 gcatctgctt gaacagatcc ctggcatcgg tgccctgggt ccggtccgg  
 25451 tgggtatcgc agctggctcg accgaggagc cgggtggcgg ggtggggatg  
 25501 gcgtgtcgtt tcccgggtgg tgtcgcatca gcggatcagt tgtgggactt

FIGURE 8(continued)

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25551 ggtgatcgct ggccgtgatg tgggtgggtaa ttttcgggcc gatcgggggtt
25601 gggatgtgga gggactgttt gatcccgatc cggacgcggt cggcaaaacc
25651 tacacccgtt acggcgcggt ccttgacgat gcggcaggtt ttgatgccgg
25701 gttctttggg atctctccac gggaggcacg cgcgatggac cccagcagc
25751 ggctgctgct ggaggtgtgc tgggaagcgc tagaaaccgc gggatttccc
25801 ggcacacact tggccggcac ctccaccggg gtattcgcgc gagcctgggc
25851 ccagtcttac ggcgccacca actccgatga cgctgagggg tatgcgatga
25901 ccggcggcgc gactagcgtc atgtccggcc gtatcgccca caccttgggc
25951 ctagaaggtc cagcgatcac cgttgacac cgcctgctcgt catcgctggt
26001 ggcaattcac ctggcctgcc aatccttac caacaacgaa tcccagctag
26051 cactggccgg cggcgtcacc gtgatgagca cacctgcggt tttaccgag
26101 ttctcccgcc aacgcggcct ggcccagat ggacgctgca aagccttcgc
26151 cgctaccgcc gatggcaccg gctttgggtga aggcgcgcgc gtcttgggtcc
26201 ttgaacggct ctccgaggcc cgcgcacaa accaccgggt ccttgcgac
26251 gtcgctggat cggcgatcaa ccaagacggc gcatccaacg gactgaccgc
26301 accccaagcc cgtcacaaac aacgcgtcat caaccaagca ctagccaacg
26351 ccggcctcac ccacgaccag gtcgacgcgc tcgaagccca cggcaccggc
26401 accacactgg gtgaccccat cgaagccagc gccctacacg ccacctacgg
26451 ccaccaccac acgcccgatc aaccgcttt gctgggatcc atcaaatcca
26501 acatcggcca cacccaagcc gccgcggcgc ccgcgggtgt ggtcaagatg
26551 atccaagcca tcaccacgc caccttgccc gccacctgc acgtcgacca
26601 acccagcccc cacatcgact ggtccagcgc cacagtcga ctctaaccg
26651 agcccatcca atggcccaac accgaccac ccgcaccgc ggcggtgtcc
26701 tcattcggca tcagcggcac caacgcccac ctcatcctcc aacaaccccc
26751 ccccccgac accacacaaa ccccaaacac cacaacaggt tctgatcccg
26801 cagtgggttc tgatcccgca gtgggtgtac tgggtgtggc gttgtcagcg
26851 cgttcagcgc cggggttaag cgcacaagcg gcccgctctg accagcatct
26901 cagcgcacac ccgatctgg atccgatcga ttagcggcac agcctggcta
26951 ccacacgag ccaccacccc caccgcgcca ccaccaccac cagcattgag
27001 caccacagcg aaaacaacca cgacacaacc gatgcgctgg ccgcaactga
27051 cgccctggcc aacaacggca cacacccccc gctgagcaga ggccctgtga
27101 cccacaggg ccccggaaca acagtgttcg tgttccccgg acagggcagt
27151 caataccccc gcatgggcgc agatctctac cgccaattcc ccgtgttcgc
27201 ccacgcccct cagcgcgcgc acgcagcgtt acagcctttc actggatggt
27251 cgggtgctagc tgtgttacac gacgaaccgc agggcccgtc gttggagcgg
27301 gtcgctgtgg tocagcctgt gttgttctcg gtgatgggtg cgttagccgc
27351 actctggcgg tgggcgggaa tcacccccga tgcagtcac ggccaactccc
27401 agggcgagat cgcgcgggca catgtggccg gagccctgac cttgcccgaa
27451 gcagctgcgg tagtggttt gcgcagccgt gtcttgaccg acctggccgg
27501 tgccgggtgc atggcttcag tgctatcgcc cgaggaacca ctgaccacgc
27551 tgctggcacg gtgggacggc aagatcaact tcgccgcagt taacggcccc
27601 gctagcgtcg tgggtctcgg cgataccaca gcgatcacg aattgtgat
27651 tacctgcgaa cacgaaaaca tcgacgctcg cgctatcccc gtggactacc
27701 cctctcattc cccctatatg gaacacatcc gccatcagtt cctcgacgag
27751 ctaccgcgagc tgacaccgcg gccatcaacc atcgcgatgt attccaccgt
27801 cgacggcgaa cctcacgaca ccgcctacga caccaccaca atgaccgcgg
27851 actactggta ccgcaacatc cgtaaacactg tccggttcca tgacactgtc
27901 gctgccctgc tcggggcggg tgagcaggtt ttccctggaac tttcacctca
27951 cccggtgttg acacaagcga tcaccgacac cgtcgaacaa gccggcggcg
28001 gcggcgagc agtgccagct ctacgcaag atcgccctga tgctgtcgcg
28051 ttcgctgcag cactcggcca gctgcactgc catggcatca gcccatcctg
28101 gaatgttctt tactgccagg cccgccccct cacactgccc acctacgctt
28151 tccagcatca gcgttactgg ctgctgccca ccgctggtga tttcagcggg
28201 gccaatatccc acgccatgca tccgctgcta gacaccgcca ccgaactggc
28251 cgaaaaccgc ggatgggtgt tcaccggccg gatcagccca cgcacccaac
28301 catggctaaa cgaacacgcc gtcgaatcag ccgtgctgtt cccaggcacc
28351 ggatttgtcg agctagcgtc gcatgtcgct gaccgtgcgc gatattcctc

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FIGURE 8(continued)

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28401 ggtcaacgaa ctgatcgtgc acacccccct gctactcgtt ggccacgaca
28451 ccgcggatct acagatcacc gtcaccgaca ccgatgacat gggccggcag
28501 tctcttaaca tccactcgca cccacatatc ggccatgaca acaccaccac
28551 cggcgatgaa caacccgagt gggtcctgca tgccagcgca gtcctgaccg
28601 cacaaccacac cgaccacaac cacctcccc taacgcctgt gccgtggcct
28651 ccaccoggca cagcccgcat cgaggtggat gacttctacg acgacctggc
28701 tgacacgggc tacaactacg gcccgacatt ccaaggtgtg caacggatat
28751 ggcgtgacca cgccacaccc gatgtcatct acgccgaagt tgaactaccc
28801 gaagacaccg acatcgacgg ctacggcacc caccocgccc tattcgacgc
28851 cgctttacac cccctactcg ccttgaccca acccccacc aacgacaccg
28901 atgacaccaa caccgcagac accggtgacc aggtgcggct gccctacgcc
28951 tttaccggca tcagtttgca cgccacccac gccaccgat tgcgggtacg
29001 gctgacccgt accggcgccg atgccatcac cgtgcacacc agtgacacca
29051 ccggagcccc ggtggcgatc atcgactcat tgatcacccg cccctcacc
29101 accggccacag ggtctgctcc ggcaaccaca gcagctggcc tactacacct
29151 gagctggcca ccacaccctg acaccacgac cgacaccgac accgacaccg
29201 atgccttgcg gtatcgggtg atcgccgaac cactcaaca actgccccgc
29251 tacctgcacg acctacacac cagcaccgac ctgcacacca gcaccacga
29301 agcagacgtg gttgtgtggc cggtaaccgt gccacgaac gaagagctcc
29351 aggcacacca agcatccgac accgcggtgt cttctcggt acacaccctg
29401 acccgccaaa cacttacgtt ggtgcaggac tggctcactc accccgacac
29451 caccggcacc cgactggcca tcgtgacccg ccacggcgtc agcaccagt
29501 cccacgaccc ggtccccgac ctagcccaag ccgcagtgtg gggcctgatc
29551 cgcagcgccc aaaacgaaca ccccggaagc ttcacactgc tcgacaccga
29601 cgacaacacc aacagcgaca ccctcaccac cgccctaacc ctgccaaacc
29651 gcgaaaacca actggccata cgcccgacac ccattccat cccccgctg
29701 acccgacaca gcagtgcagg tgcgctcact gcgcgggtgg tggtagatcc
29751 tgagggcacg gtgttgatca ccggggggac cgggacgctg ggtgccttgt
29801 tcgccgagca tctgggttct gcccatggtg tccggcatct gttgttgacc
29851 tcgcgggcgg gacctcaggc ccacgggtgc accgatctgc agcagcggt
29901 caccgatcta ggtgctcatg tcaccatcac ggcctgcgat atcagcgacc
29951 ccgaagcact ggccgcccct gtcaattcag tgccacaca acaccgttta
30001 acccgggtag tgacacaccg cgcggtattg gccgacaccc cggtaaccga
30051 gttgacgggc gatcaactcg accaggtgct gggcccaaaa atcgacggcg
30101 catggcagct gcaccaactc acctacgaac acaacctgtc tgcattcatc
30151 atgttctcgt ccatggccgg aatgataggc agtcccggtc agggtaacta
30201 cgcggcagcc aacaccggct tagatgctct cgccgactac cgccaccgcc
30251 tgggcttgcc cgcgaccagc ctggcctggg gctactggca gactcacacc
30301 ggtctcaccg cgcattctaac cgatgtagat ctagcccgca tgaccgcctt
30351 gggtttgatg cccatcgcca ccagccacgg actggccctg ttcgatgcgg
30401 ccctcgccac cggacagccc gtttcgatac ccgcccgat caacaccac
30451 accctggccc gacacgccc cgacaacacc ctggccccga tctgtctgc
30501 gctgatcacc acaccacggc gccggggcgg cttcgccgca accgatctcg
30551 ctgcccgcct caacggactt agccccaac agcaacaaca aacactggcc
30601 accctcgtgg ccgcgccac cgccaccgtg ctgggcccac acaccocga
30651 aagcatcagc ccagccaccg cgttcaaaga cctcggaatc gattcgctga
30701 ccgcccctga actgcgcaac accctcacc acaacaccgg cctggatctg
30751 ccccccaccc tcatcttcga tcacccaca cccatgcgg tggccgagca
30801 tctgcttgaa cagatccctg gcatcggtgc cctgggtgccc gctccggtgg
30851 tgatcgacgc tggctgtacc gaggagccgg tggcggtggg ggggatggcg
30901 tgctgcttcc ccggtggtgt cgcacagcg gatcagttgt gggacttggg
30951 gatcgctggc cgtgatgtgg tgggtaattt tccggcgat cggggttggg
31001 atgtggaggg actgtttgat cccgatccgg acgcggtcgg caaaacctac
31051 acccgttacg gcgcgttctt tgacgatgcg gcaggttttg atgccgggtt
31101 ctttgggata tctccacggg aggcacgcgc gatggacccc cagcagcgcc
31151 tgcgtctgga ggtgtgctgg gaagcgctag aaaccggggg tattcccgcg
31201 cacaccttgg ccggcacctc caccggggta ttcgcccggg cctgggcccc

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FIGURE 8(continued)

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31251 gtcctacggc gccaccaact ccgatgacgc tgaggggtat gcgatgaccg
31301 gcggcgcgac tagcgctcatg tccggccgta tcgcctacac cttgggccta
31351 gaaggtccag cgatcacccgt tgacaccgcc tgctcgatcat cgctgggtggc
31401 aattcacctg gcctgccaat ccttacgcaa caacgaatcc cagctagcac
31451 tggccgcgcg cgtcaccgtg atgagcacac ctgcggtttt caccgagttc
31501 tcccgccaac gcggcctggc cccagatgga cgctgcaaag ccttcgccgc
31551 taccgcccgt ggcaccggct ttggtgaagg cgccgcggtc ttggtccttg
31601 aacggctctc cgaggcccgc cgcaacaacc accgggtcct tgcgatcgtc
31651 gctggatcgg cgatcaacca agacggcgca tccaacggac tgaccgcacc
31701 ccacggcccg tcacaacaac gcgtcatcaa ccaagcacta gccaacgccg
31751 gcctcaccca cgaccaggtc gacgccgtcg aagcccacgg caccggcacc
31801 aactgggtg accccatcga agccagcgcc ctacacgcca cctacggcca
31851 ccaccacacg cccgatcaac cgctttgggt gggatccatc aaatccaaca
31901 tcggccacac ccaagccgcc gccggcgccg ccggtgtggt caagatgatc
31951 caagccatac cccacggcac cttgcccgcc accttgcaag tcgaccaacc
32001 cagcccccac atcgactggt ccagcgcgac agtccgactc ctaaccgagc
32051 ccatccaatg gcccaaacac gaccaccccc gcaccgcggc ggtgtcctca
32101 ttccggcatc gcggcaccaa cgcccacctc atcctccaac aacccccac
32151 ccccgacacc acacaaaccc ccaacaccac aacaggttct gatccgcag
32201 tgggttctga tcccgcatg ggtgtactgg tgtggccgtt gtcagcgcg
32251 tcagcgccgg ggttaagcgc acaagcgcc cgctctgtacc agcatctcag
32301 cgcccacccc gatctggatc cgatcgatgt agcccacagc ctggctacca
32351 cagcgagcca ccaccccac cgcgccaaca taccaccag cattgagcac
32401 cacagcga aaacaaccac cacaaccgat gcgctggccg cactgcacgc
32451 cctggccaac aacggcacac acccctgct gagcagaggc ctgctgaccc
32501 cacagggccc cggcaaaaca gtgttcgtgt tcccggaca gggcagtaaa
32551 taccgccgga tggggcgaga tctctaccgc caattccccg tgttcgccc
32601 cgccctcgac gcatgcgacg cagcgttaca gcctttcact ggatggtcgg
32651 tgctagctgt gttacacgac gaaccgagg cccgctcgtt ggagcgagtc
32701 gatgtggtcc agcctgtgtt gttctcggtg atggtgtcgt tagccgact
32751 ctggcggttg gccggaatca ccccgatgc agtcacggc cactcccagg
32801 gcgagatcgc cgcgccacat gtggccggag ccctgacctt gccgaagca
32851 gctgcggtag tggctttgcg cagcgtgtc ttgaccgacc tggccggtgc
32901 cggtgccatg gcttcagtgc tatcgcccga ggaaccactg acccagctgc
32951 ttggcaggtg ggacggcaag atcactgtcg ccgcagttaa cggccccgct
33001 agcgtgtgtg tctccggcga taccacagcg atcaccgaat tgctgattac
33051 ctgcgaacac gaaaacatcg acgctcgcgc tatcccggtg gactaccctt
33101 ctcatctccc ctatatggaa cacatccgcc atcagttcct cgacgagcta
33151 cccgagctga caccgcggcc atcaaccatc gcgatgtatt ccaccgtcga
33201 cggcgaaact cagcacaccg cctacgacac caccacaatg acccgggact
33251 actggtaccg caacatccgt aacactgtcc ggttccatga cactgtcgt
33301 gccctgctcg gggcggtgga gcaggttttc ctggaacttt cacctcacc
33351 ggtgttgaca caagcgatca ccgacaccgt cgaacaagcc ggcggcgcg
33401 gcgcagcagt gccagctcta cgcaaggatc gccctgatgc tgtcgcggtc
33451 gctgcagcac tcggccagct gcactgcat ggcatcagcc catcctggaa
33501 tgttctttac tgccaggccc gcccccctac actgcccacc tacgtttcc
33551 agcatcagcg ttactggctg ctgcccaccg ctgggtgatt cagcggggcc
33601 aatacccacg ccatgcatcc gctgctagac accgccaccg aactggccga
33651 aaaccgcgga tgggtgttca ccggccggat cagcccacgc acccaacct
33701 ggctaaacga acacgccgt gaatcagccg tgctgttccc aggcaccgga
33751 ttcgctcagc tagcgctgca tgtcgctgac cgtgccggat attcctcggt
33801 caacgaactg atcgtgcaca cccccctgct actcgtggc cagcacaccg
33851 cggatctaca gatcaccgtc accgacaccg atgacatggg ccggcagctc
33901 cttaacatcc actcgcgccc acatatcggc catgacaaca ccaccaccgg
33951 cgatgaacaa cccgagtggt tctgcatgc cagcgcagtc ctgaccgcac
34001 aaaccaccga ccacaaccac ctcccctaa cgctgtgccc gtggcctcca
34051 cccggcacag ccgcgatcga ggtggatgac ttctacgacg acctgggtgc

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FIGURE 8(continued)

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34101 acaggggtac aactacggcc cgacattcca aggtgtgcaa cggatatggc
34151 gtgaccacgc cacaccgat gtcattctacg ccgaagttga actaccgaa
34201 gacaccgaca tcgacggcta cggcatccac cccgccctat tcgacgccgc
34251 tttacacccc ctactcgccc tgacccaacc cccaccaaac gacacogatg
34301 acaccaaacac cgcagacacc ggtgaccagg tgcggctgcc ctacgccttt
34351 accggcatca gtttgacgc caccacgcc acccgattac gggtagggct
34401 gaccogtacc ggcgcgatg ccattaccgt gcacaccagt gacaccaccg
34451 gagccccggg ggcgatcatc gactcattga tcaccgccc cctcaccacc
34501 gcoacagggt ctgctccggc aaccacagca gctggcctac tacacctgag
34551 ctggccacca caccctgaca ccacgaccga caccgacacc gacaccgatg
34601 cctgcgggta tcaggtgatc gccgaaccca ctcaacaact gcccgctac
34651 ctgcacgacc tacacaccag caccgacctg cacaccagca ccaccgaagc
34701 agacgtggtt gtgtggccgg taccggtgcc cagcaacgaa gagctccagg
34751 cacaccaagc atccgacacc gcggtgtctt ctcgataca caccctgacc
34801 cgccaaacac ttaccgtggt gcaggactgg ctactcacc ccgacaccac
34851 cggcaccoga ctggctcatc tgaccgcga cggcgctcagc accagtgcgc
34901 acgaccgggt ccccgacctc gccacgcgc cagtgtgggg cctgatccgc
34951 agcgcacaaa acgaacaccc cggacgcttc aactgtctcg acaccgacga
35001 caacaccaac agcgacaccc tcaccaccgc cctaaccctg ccaaccgcgc
35051 aaaaccaact ggccatacgc cgcgacacca tccacatccc ccgcctgacc
35101 cgacacagca gtgacggtgc gtcactgcg ccggtggtgg tagatcctga
35151 gggcacggtg ttgatcaccg gggggaccgg gacgctgggt gccttgctcg
35201 ccgagcatct ggtttctgcc catggtgtcc ggcattctgtt gttgacctcg
35251 cggcgcggac ctacggccca cggtgccacc gatctgcagc agcggctcac
35301 cgatctaggt gtcattgtca ccattacggc ctgcgatatc agcgaccccg
35351 aagcactggc cgccttggtc aattcagtgc ccacacaaca ccgtttaacc
35401 gcggtagtgc acaccgccc ggtattggcc gacaccccg tcaccgagtt
35451 gaccggcgat caactcgacc aggtgtctgc ccccaaatc gacgcggcat
35501 ggcagctgca ccaactcacc taogaacaca acctgtctgc attcatcatg
35551 ttctcgtcca tggccggaat gataggcagt cccggtcagg gtaactacgc
35601 ggcagccaac accgcgttag atgctctcgc cgactaccgc caccgcctgg
35651 gcttgcccgc gaccagcctg gcctggggct actggcagac tcacaccggt
35701 ctacaccgcg atctaaccga tgtagatcta gcccgcatga cccgcctggg
35751 tttgatgccc atcgccacca gccacggact ggccctgttc gatgccgccc
35801 tcgccaccgg acagcccggt tcgatacccg ccccgatcaa caccacacc
35851 ctggcccgcac acgcccgcga caacaccctg gcccgatcc tgtctgogct
35901 gatcaccaca ccacggcgcc gggcggcctc tggcgcaacc gatctcgtg
35951 cccgcctcaa cggacttagc cccaacagc aacaacaaac actggccacc
36001 ctcgtaggccc cggccaccgc caccgtgctg ggccaccaca ccccgaag
36051 catcagccca gccaccgctg tcaaagacct cggaatcgat tcgctgaccg
36101 cccttgaact gcgcaacacc ctacccaca acaccggcct ggatctgccc
36151 cccacctca tcttcgatca cccacacccc catgcggtgg ccgagcatct
36201 gcttgaacag atccctggca tcggtgccct ggtgcggct ccggtggtga
36251 tcgcagctgg tcgtaccgag gagccggtgg cgggtggtgg gatggcgtgt
36301 cgtttccccg gtggtgtcgc atcagcggat cagttgtggg acttggtgat
36351 cgttgcccggt gatgtggtgg gtaattttcc gcccgatcgg ggttgggatg
36401 tggagggact gtttgatccc gatccgga cggtcggcaa aacctacacc
36451 cgttacggcg cgttccttga cgatgcggca ggttttgatg ccgggttctt
36501 tgggatctct ccacgggagg cagcgcgat ggacccccag cagcggctgc
36551 tgctggagggt gtgctgggaa gcgctagaaa ccgcggtat tcccgcgcac
36601 accttggccg gcacctccac cggggtatc gccggagcct gggcccgatc
36651 ctacggcgcc accaactccg atgacgctga ggggtatgcg atgaccggcg
36701 gcgcgactag cgtcatgtcc ggccgtatcg cctacacctt gggcctagaa
36751 ggtccagcga tcaccgttga caccgcctgc tcgtcatcgc tgggtggaat
36801 tcacctggcc tgccaatcct tacgcaacaa cgaatcccag ctagcactgg

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FIGURE 8(continued)

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36851 cggcgcggt caccgtgatg agcacacctg cggttttcac cgagttctcc
36901 cgccaacgcg gcctggcccc agatggacgc tgcaaagcct tcgccgtac
36951 cgccgatggc accggctttg gtgaaggcgc cgcggtcttg gtccttgaac
37001 ggctctccga ggcccgccgc aacaaccacc cggtccttgc gatcgtcgct
37051 ggatcgcgga tcaaccaaga cggcgcatcc aacggactga ccgcacccca
37101 cggcccggtca caacaacgcg tcatcaacca agcactagcc aacgccggcc
37151 tcaccacaga ccaggtcgac gccgtcgaag ccacaggcac cggcaccaca
37201 ctgggtgacc ccatcgaagc cagcgcccta cagccacct acggccacca
37251 ccacacgccc gatcaaccgc tttggtggg atccatcaaa tccaacatcg
37301 gccacaccca agccgcgcgc ggcgccgcgc gtgtggtcaa gatgatccaa
37351 gccatcaccc acgccacctt gccgcgccacc ttgcacgtcg accaaccag
37401 cccccacatc gactgggtcca gcggcacagt ccgactccta accgagccca
37451 tccaatggcc caacaccgac ccccccgca ccggggcggg gtcctcattc
37501 ggcatcagcg gcaccaacgc ccacctcctc ctccaacaac cccccacccc
37551 cgacaccaca caaaccccca acaccacaac aggtttctgat cccgcagtgg
37601 gttctgatcc cgcagtgggt gtactgggtg ggccgttgtc agcgcggttca
37651 gcgcgggggt taagcgcaac agcgggccgt ctgtaccagc atctcagcgc
37701 ccacccgat ctggatccga tcgatgtagc ccacagcctg gctaccacac
37751 gcagccacca cccccaccgc gccaccatca ccaccagcat tgagcaccac
37801 agcgaaaaca accacgacac aaccgatgcg ctggccgcac tgcacgccct
37851 ggccaacaac ggcaacacac ccctgctgag cagaggcctg ctgacccac
37901 agggccccgg caaaacagtg ttctgtgtcc ccggacaggg cagtcaatac
37951 cccggcatgg gcgcagatct ctaccgcca ttccccgtgt tcgcccacgc
38001 cctcgacgag gtctgtcgcg cgctgaacc gcactctgat gttgcttgc
38051 ttgaggtgat gttcagccaa caagacactg ccatggcgca actgctggac
38101 cagaccttct atgcacaacc ggctgtgttc gcgctgggaa ccgctctaca
38151 tcgattgttc acccagcccg gtatccacc ggactacctg ctaggccact
38201 ccacgggaga actcacgcg gcatacgccg ccggtgtgct gtcactgcaa
38251 gacgcagcca ccttggtcac aagccgagga cgactgatgc aatcctgcac
38301 gcccgccggg acgatgctcg cactacaagc cagcgaagca gaagtacaac
38351 cgctgcttga aggcctagac cagccgtgt ccacgcgcgc gatcaacgga
38401 gcaacgtcga tcgtactgtc aggagatcac gacagcctcg aacaaatcgg
38451 cgagcacttc attacccaag atcgacgtac caccgcactg caggtcagtc
38501 acgctttcca ctctccacat atggacccca tcctogaaca attccgccag
38551 atcgcggcc aactcacctt cagcgcaacc accctgcccc tcttgtccaa
38601 cctcacccgg cagatcgccc gccacgacca actcgcccta cctgactatt
38651 ggacccaaca gctacgtaac actgtccggt tccatgacac tgtcgtgcc
38701 ctgctcgggg cgggtgagca ggttttctg gaactttcac ctaccccggt
38751 gttgacacaa gcgatcaccc acaccgtcga acaagccggc ggccggcgcg
38801 cagcagtgcc agctctacgc aaggatcgcc ctgatgctgt cgcgttcgct
38851 gcagcactcg gccagctgca ctgccatggc atcagcccat cctggaatgt
38901 tctttactgc caggcccgcc cctcacact gccaccta cgtttccagc
38951 atcagcgtaa ctggctgctg cccaccgctg gtgatttcag cggggccaat
39001 acccagcca tgcacgctg gctagacacc gccaccgaac tggccgaaaa
39051 ccgcggatgg gtgttcaccg gccggatcag ccacgcacc caaccatggc
39101 taaacgaaca cgccgtcgaa tcagccgtgc tgttcccagg caccggattt
39151 gtcgagctag cgctgcatgt cgctgaccgt gccgatatt cctcggtcaa
39201 cgaactgatc gtgcacacc ccctgctact cgctggccac gacaccgcg
39251 atctacagat caccgtcacc gacaccgatg acatgggcgc gcagtctctt
39301 aacatccact cgcgcccaca tatcgcccat gacaacacca ccaccggcga
39351 tgaacaaccc gagtgggtcc tgcattgccag cgcagtctg accgcacaaa
39401 ccaccgacca caaccacctc cccctaacgc ctgtgccgtg gcttccaccc
39451 ggacagcccg cgatcgaggt ggtgacttc tacgacgacc tgggtgcaca
39501 gggctacaac tacggccoga cattccaagg tgtgcaacgg atatggcgtg
39551 accacggcac accgatgtc atctacgcg aagtgaact acccgaagac
39601 accgacatcg accgtacgg catccacccc gccctattcg acgcccgtt
39651 acacccctca ctgcacctga cccaaccccc caccacgcac accgatgaca

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FIGURE 8(continued)



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39701 ccaacaccgc agacaccggg gaccaggtgc ggctgcccta cgcctttacc
39751 ggcatacagtt tgcacgccac ccacgccacc cgattacggg tacggctgac
39801 ccgtaccggc gccgatgcc taccgtgca caccagtac accaccggag
39851 ccccggtggc gatcatcgac tcattgatca cccgcccct caccaccgcc
39901 acagggtctg ctccggcaac cacagcagct ggctactac acctgagctg
39951 gccaccacac cctgacacca cgaccgacac cgacaccgac accgatgccc
40001 tgcggtatca ggtgatgcc gaaccactc aacaactgcc ccgtacctg
40051 caccacctac acaccagcac cgacctgcac accagcacca cogaagcaga
40101 cgtgggtgtg tggcgggtac cggtgcccag caacgaagag ctccaggcac
40151 accaagcatc cgacaccgcg gtgtcttctc ggatacacac cctgaccgcg
40201 caaacactta ccgtgggtga ggactggctc actaccccgc acaccaccgg
40251 caccgactg gtcactgtga cccgccacgg cgtcagcacc agtgcccacg
40301 acccggtccc cgacctagcc cagcccgagc tgtggggcct gatccgcagc
40351 gcccaaaacg aacaccccgg acgcttcaca ctgctcgaca ccgacgacaa
40401 caccaacagc gacaccctca ccaccgccct aacctgcca acccgcaaaa
40451 accaactggc catacgcgcg gacaccatcc acatcccgcg cctgaccgga
40501 cacagcagtg acggtgcgct cactgcgcgg gtggtggtag atcctgaggg
40551 caggtgtgtg atcaccgggg ggaccgggac gctgggtgcc ttgttcgccc
40601 agcatctggt ttctgcccac ggtgtccggc atctgttgtt gacctcgccg
40651 cgccgacctc agggccacgg tgccaccgat ctgacgcagc ggctcaccga
40701 tctaggtgct catgtcacca tcacggcctg cgatatcagc gacccgaag
40751 cactggccgc cctggtcaat tcagtgccca cacaacaccg tttaaccgcg
40801 gtagtgcaca ccgcgcgggt attggccgac accccggtca ccgagttgac
40851 cggcgatcaa ctgcaccagg tgctggcccc caaaatcgac gcggcatggc
40901 agctgcacca actcacctac gaacacaacc tgtctgcatt catcatgttc
40951 tcgtocatgg ccggaatgat aggcagtccc ggtcagggta actacgcggc
41001 agccaacacc gcgttagatg ctctcgccga ctaccgccac cgcctgggct
41051 tgcccgcgac cagcctggcc tggggctact ggcagactca caccggtctc
41101 accgcgcac taaccgatgt agatctagcc cgcattgacc gctggggtt
41151 gatgccatc gccaccagcc acggactggc cctgttcgat gccgccctg
41201 ccaccggaca gcccgtttgc ataccgccc cgatcaacac ccacaccctg
41251 gcccgacacg cccgcgacaa caccctggcc ccgatcctgt ctgcgctgat
41301 caccacacca cggcgccggg cggcctctgc cgcaaccgat ctcgctgccc
41351 gcctcaacgg acttagcccc caacagcaac aacaaact ggccaccctc
41401 gtggccgcg ccaccgccac cgtgctgggc caccacacc ccgaaagcat
41451 cagcccagcc accgcgttca aagacctcgg aatcgattcg ctgaccgccc
41501 ttgaactgcg caacacccctc acccacaaca ccggcctgga tctgcccccc
41551 accctcatct tcgatcacc cacccccct gcgtaaccc aacacctgca
41601 caccgactc acccaaagcc ataccgggt cggaccaatt gcgtccctgc
41651 taagccacgc gatcgatgag ggcaaattcc gtgcccgcgc tgacctattg
41701 atggccgcat ccaatttgaa ccaaagtctc agcaatatgg ctgaactcaa
41751 ccagctcccg gccgtgacgg acatagctga cgcgtctcct gatgggctac
41801 tcacctgat ctgcatctct acctcagaga atgagtacgc tcgcctogct
41851 gctgcgaaca ttcatctact gaccttcgct gaaattgcgg cgcgggctt
41901 ttacgacgcg cagctgcaa attcgataga gacgtcggca gaggcgctgg
41951 caactgccat cacaggcgcc tacgcaaata cgtccattgt tctggtagcg
42001 cactccattg tctgcgagct agctcaggca acgatgacac gtctacaaga
42051 cgctgacatc gatcttgtgg gtctggttct gttgatcca ctogaaggga
42101 ctaacagcac tgaagattat gtggagacag tcttgactcg aatcgagcat
42151 atcaatgcac cgagggtcgg agtagacggt taccttgccg ccctggggcg
42201 ctatctccaa ttccacgaag accgccgaat accaataccg gaaacggggc
42251 acatgacact gactcggac acgaaaattg accgtgcca aacaccaatg
42301 aacttattac aagatgaggc agcgttgacc gccctcaaaa taggaaactg
42351 gatgaacgac gtgggtgttg ccctctctgt caaccttgag tga

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FIGURE 8(continued)

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## Mup045 gene

```

1   gtgatttgga atgacatcta cataagtgga acggggcggtt tcatcccgtc
51  aatgcgacca attaatgata tccaggtcga cgggtgtccg aatgatcata
101 ctatcgtgca atccgattac atttccttca ccgaagccga tgagccggct
151 acagtcgatg ccacgcgcgc tgcaaccgaa gcgctgacca cttccgagct
201 agtatccgct gatgttggcg tcttgatata tgccgcgac atcggcgatg
251 cgcatacttt tgccccgta tgtcacgtcc aaagagtcc cggggcgccc
301 gatgcgctgg cattcgaact ttccgcagca agtaacgggtg gaacacaagg
351 catcgcagtt gctgcaaata tcatgacagc tgacgcgtcc gtgaaagctg
401 cactcgtttg tacagcttac cggcaccgca tcgatattat cagccgttgg
451 tcgtcaggta tggatttcgg cgatggagca gccgcgcgcg tgctttcaag
501 agacggcgga atggtgcgat tgatttcggg gtatcacggc tactgcggg
551 agctagaggt tcttgctaga aatcgatcca acgaacgact tggctttgtg
601 ctgccagacg tcgggttagg aaaataccta actgctatag cgcggatgta
651 ccaagcggtg attgcgcaag tactagaaga ggcacaaact agtattgcog
701 agatcgacta tttcggcctg atcggtatag gaattccaag tctcacagcg
751 actatcttag aacccaacgg tattccagtt aataaaacat cctgggggtt
801 gctaagacaa atgggccacg ttggagcttg cgatccctg ctgagcctta
851 accacctatt cgagcagaat gtcccaagc gcggcgacaa agtccactc
901 ctagggtggc ggggtgggta tcgattgaca tgcattgtgg ctgaaatcgc
951 catgaaatcc ggctgcccg gacactccac ttcgtag

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FIGURE 9

## Mup053 gene

```

1   gtgaggcaga gattgaactg gattgcggcg cacgggttgc tccgcggcac
51  cgcgcggtta gcggcccggc tgggcgacgt gcagtcgagg ctggtggcag
101 atcccatggg tatggcaaac ccggcgccat tttgcgatga attgagggca
151 atcgccctg tgggtgcgag ctacggcacc cacctcgtcg ttagtcatgc
201 catcgcccat gaactgcttc ggtccgaaga cttogaagtg gtctcgctcg
251 gatcgaactt gccggcacca atgcgctggc tagagcgccg cactcgggac
301 gatacgcccc atctgctgct gccgcgctcg ttgctggccg ttgagccgcc
351 gaatcacacg cgctatcgca aggcagtgct ctgggtgttc acgccgaaag
401 cagtagccgg attacgcgat catgtcgaag agactgcgtc gccgctgtt
451 gatcagctca ccgaccaggc tagtgccgtc gacatcatag cccgctactg
501 ctcccagctg ccggtcgcgg tcatttgtga catcttaggc gtgcccagtc
551 gagaccgaaa ccgtgttctc aagttcggtc agctggcggg gccctgcttg
601 gattttgggc tcacatggcg tcagcaccag caggtgcggc aagggtcca
651 aggactccac ttctggatca ccgagcacct cgaggaattg cggctaaacc
701 ccggtgacga tctgatgagt caaatgatcc acgcaagtga aaatggctcc
751 tcggaaacac acctccacgc aaccgaagtg cggatgatcg ggctgggtt
801 gggcgccagt ttcgcaacaa cgatggacct gttaggcaac gggattcagg
851 tgttggttga cgcgcccga ctgcgggacg cgttgagtca gcgccgcaa
901 ctttggccca acgcggtaga agagatcctg cggttggagc caccggttca
951 gctcgcggga cgaatggctc gcaaggacac cgaggtggcg ggtaccgcaa
1001 tcaagcgggg ccagctgggt gcgatctatc tggggcggt caaccgtgat
1051 ccgtccgtgt tcgccgatcc gcaccgctt gacatcacac gagccaacgc
1101 caaccggcat ctgcattct ccggtggccg ccacttctgc ctgggtgccg
1151 cccttgcccg cgtcgaaggc gaagtccgat tgagaatgct cttcgagcgc
1201 ttccctgacg tgcgcgccgc aggcccgga aatagacgtg atactogaac
1251 tctgcggggt tggtcgcagc tgccggtcca gttgggcgca gcacgatcga
1301 tggctatccg atga

```

FIGURE 10

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## Mup038 gene

```
1  atgattgttt ggcccgaagt ggtcagcaca gtggtcgacg tcgatggcgt
51  ggcgatgtcg gcactagtcg ccgaaccgga tcaggagcct aaggccgtga
101 tcttagccct gcatggcggt gccaccaacg cgcggtatct cga.ctgccct
151 ggccaccgcg cgctttccct gctgcacacc ggcgcgcgcg cgggattcac
201 cgttgtggcc cttgaccggc ccggctacgg cagctcgcgg ggt.gatccc
251 acgcgatgaa ccggccccac cagcgggccc cgctggccta tggggcgctg
301 gatcgcatcc tggcgacgcg gccacgcggg gccggggtgt tcataatggg
351 ccattcaaac ggatgcgaac tggcgatgtg gatggccacc gagacgcgcg
401 gtgccgagct gtcggcatc gagttggctg gtaccgctg gcattatcag
451 cccgaggccc gagaaatcct gacaacggcc actggtgaac atcgggtggg
501 gggcctctat gatttgctct ggcacgcgca gcggctatac ccgcccagg
551 tcctcaacgc ggccatcatt tcttcgtccg ccccggccta caggagcag
601 atgatggcgg actggaccgg ccgaaccttc ctggagctag tccctgctgt
651 gcgtgtgccg gtacatttca gcatcgcca acacgaaaag gtt.tggcagc
701 gcgatagtcc agcgctagat gaaatcgccg tcctgttctc tggcgcgccg
751 cggttcatcc tgcataaaca acccgaggcc ggacacaaca tcagcctggg
801 ccacaccgcc ggcgactacc acacgacagt cctgtcgttt gtccagcaat
851 gtctggccga acggttgccc aacgcgcaac aagatgtcga tct.cgcggcc
901 gagtga
```

FIGURE 11

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## MlsA1 protein

VIFGDAHQNCRGGRVLGDAVAVVGMSCRVPGASDPDALWALLRDGI SVVDEIPSARWNLD  
 GLVAHRLTDEQRSALRHGAFLDDVEGFDAFFGINPSEAGSMQPQRLMLELTWAALEDA  
 RIVPEHLSGSSSGVFTGAMSDDYTTAVTYRAAMTAHTFAGTHRSLIANRVSYTLGLRGPS  
 LVIDTGQSSSLVAVHVAMESLRREETSLAIAGGIHLNLSLAAALSAAHFGALSPDGRCYT  
 FDARANGYVRGEGGGVVVLKRLNDALADGNHIYCVIRGSSVNNDGATQDLTAPGVVGGQRQ  
 ALLQAYERAEIDPSEVQYVELHGTGTRLGDPTEAHSLSVFGTSTVPRSPLLVGSIKTNI  
 GHLEGAAGILGLIKTALAVHHRQLPPSLNYTVPNPKIPLEQLGLRVQTTLSEWPDLDKPL  
 TAGVSSFSMGGTNAHLILQQPPTPDTTQTPNPTTGS DPAVGSDPAVGVLVWPLSARSAPG  
 LSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRATITTSIEHHSENNHDTTDALAA  
 LHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGSGQYPGMGADLYRQFPVFAHALDEVAA  
 ALNPHLDVALLEVMSQQDTAMAQLLDQTFYAQPALFALGTALHRLFTHAGIHPDYLLGH  
 SIGELTAAYAAGVLSLQDAATLVTSRGRIMQSCTPGGTMLALQASEAEVQPLLEGLDHAV  
 SIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTTRLQVSHAFHSPHMDPILEQFRQIAA  
 QLTFSAPTLPILSNLTGQIARHDQLASPDYWTQQLRNTVRFHDTVAALLGAGEQVFLELS  
 PHPVLTAQAITDTVEQAGGGGAAPALRKDRPDVAFAAALGQLHCHGISPSWNVLYCQAR  
 PLTLPTYAQHQRYWLLPTAGDFSGANTHAMHPLLDTATELAENRGWVFTGRISPRTQPW  
 LNEHAVESAVLFPNTGFVELALHVADRAGYSSVNELIVHTPLLLAGHDTADLQITVTDTD  
 DMGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVLTAQTTDHNHLLPTPVPWPPPGTA  
 AIEVDDFYDDLAAQGYNYGPTFQGVQRIWRDHATPDVIYAEVELPEDTDIDGYGIHPALF  
 DAALHPLLALTQPPTNDTDDTNTADTGQVRLPYAFTGISLHATHATRLRVRLTRTGADA  
 ITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPPHPDTTTTDTD  
 LRYQVIAEPTQQLPRYLHDLHTSTDLTSTTEADV VWPVPVPSNEELQAHQASDTAVSS  
 RIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPDLAHAAVWGLIRSAQN  
 EHPGRFTLLDNTNSDTLTALTPTRENQLAIRDTIHIPRLTRHSSDGALTAPVVV  
 DPEGTVLITGGTGTLGALFAEHLVSAHGVRHLLTSRRGPQAHGATDLQQRLLDLAGHVT  
 ITACDISPEALAAALVNSVPTQHRLTAVVHTAAVLADTPVTELTGDLQDLQVLAPKIDAAW  
 QLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNAAAANTALDALADYRHRGLPATSLAWGY  
 WQHTGTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPVSI PAPINTHTLARH  
 ARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPOQQOQLATLVAAATATVLGHHT  
 PESISPATAFKDLGIDSLTALELRNTLTHTNLTGLNLSSTLIFDHPTPHAVAEHLLEQIPGI  
 GALVPAPVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIAGR DVVGNFPADRGWDV  
 EGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDPQQRLLLEVCWEALET  
 AGIPAHTLAGTSTGVFVGAWAQSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGLEGPPI  
 TVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVMSTPAVFTDFSRQRGLAPDGRCKAF  
 AATADGTGWEGGAAVLVLERLSEARRNNHPVLAIVAGSAINQDGASNGLTAPHGSPQQRV  
 INQALANAGLTHDQVDAVEAHGTGTTLGDPLEAGALHATYGHHTPDQPLWLGSIKSNIG  
 HTQAAAGAAGVVKMIQAIHTATLPATLHVDQPSPHIDWSSGTVRLLTEPIQWPNTDHPRT  
 AAVSSFGISGTNAHLILQQPPTPDTTQTPNPTTGS DPAVGSDSAVGSDPAVGVLVWPLSA  
 RSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRATITTSIEHHSENNHDTT  
 DALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGSGQYPGMGADLYRQFPVFAHAL  
 DEVAAALNPHLDVALLEVMSQQDTAMAQLLDQTFYAQPALFALGTALHRLFTHAGIHPD  
 YLLGHSIGELTAAYAAGVLSLQDAATLVTSRGRIMQSCTPGGTMLALQASEAEVQPLLEG  
 LDHAVSIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTTRLQVSHAFHSPHMDPILEQF  
 RQIAAQLTFSAPTLPILSNLTGQIARHDQLASPDYWTQQLRNTVRFHDTVAALLGAGEQV  
 FLELSPHPVLTAQAITDTVEQAGGGGAAPALRKDRPDVAFAAALGQLHCHGISPSWNV  
 YCQARPLTLPTYAQHQRYWLLPTAGDFSGANTHAMHPLLDTATELAENRGWVFTGRISP  
 RTQPWLNEHAVESAVLFPNTGFVELALHVADRAGYSSVNELIVHTPLLLAGHDTADLQIT  
 VTDTDDMGRQSLNIHSHRPHIGHDNTTTGDEQPEWVLHASAVLTAQTTDHNHLLPTPVPWP  
 PPGTAAIEVDDFYDDLAAQGYNYGPTFQGVQRIWRDHATPDVIYAEVELPEDTDIDGYGI  
 HPALFDAALHPLLALTQPPTNDTDDTNTADTGQVRLPYAFTGISLHATHATRLRVRLTR  
 TGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPPHPDTTTTD  
 TDTDALRYQVIAEPTQQLPRYLHDLHTSTDLTSTTEADV VWPVPVPSNEELQAHQASD  
 TAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPDLAHAAVWGLI  
 RSAQNEHPGRFTLLDNTNSDTLTALTPTRENQLAIRDTIHIPRLTRHSSDGALT  
 APVVVDPEGTVLITGGTGTLGALFAEHLVSAHGVRHLLTSRRGPQAHGATDLQQRLLD

FIGURE 12

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GAHVTTACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELTGDQLDQVLAPK  
 IDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNIAAANTALDALADYRHLGLPATS  
 LAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPVSI PAPINTH  
 TLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPOQQQQTALTLVAAATATV  
 LGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLNLSSTLIFDHPTPHAVAEHLLE  
 QIPGIGALVPAPVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIAGRDVVGNFAD  
 RGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDPQQRLLLEVCW  
 EALETAGIPAHTLAGTSTGVFVGAGAQSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGL  
 EGPAITVDTACSSSLVAIHLACQSLRNESQLALAGGVTVMSTPAIFTEFSRQRLAPDG  
 RCKAFAATADGTGWGEGAAVLVLERLSEARRNNHPVLAIVAGSAINQDGASNGLTAPHGP  
 SQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPPIEAGALHATYGHHTPDQPLWLGS  
 KSNIGHTQAAAGAAGVVKMIQAITHATLPAHLHVDQPSPHIDWSSGTVRLLTEPIQWPNT  
 DHPTAAVSSFGISGNAHLILQPPPTDPTTQTPNPTTGSDDPAVGSDDPAVGSDDPAVGLV  
 WPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRATITTSIEHSEN  
 NHDTTDALAALHALANNGTHPLLSRGLLTPQGPVKTVFVFPQGGSQYPMGADLYRQFPV  
 FAHALDACDAALQPFTHGWSVLAVLHDEPEAPSLERVDVQPVLFVSVMSLAALWRWAGIT  
 PDAVIGHSQGEIAAAHVAGALTPEAAAVVALRSRVLTDLAGAGAMASVLSPEEPLTQLL  
 ARWDGKITVAAVNGPASAVVSGDTTAITELLITCEHENIDARAI PVDYPSHSPYMEHIRH  
 QFLDELPELTPRPSTIAMYSTVDGEPHDTAYDTTMTADYWYRNIRNTVRFHDTVAALLG  
 AGEQFLELSPHPVLTAITDTEVEQAGGGGAAPALRKDRPDVAFAAALGQLHCHGISP  
 SWNVLYCQARPLTLPTAFQHQRYWLLPTAGDFSGANTHAMHPLLDATELAENRGWVFT  
 GRISPRTPQWLNEHAVESAVLFPGTGFVELALHVAADRAGYSSVNELIVHTPLLAGHDTA  
 DLQITVTDTDMMGRQSLNIHSRPHIGHDNTTGTGEQPEWVLHASAVLTAQTTDHNHLPLT  
 PVPWPPPGTAAIEVDDFYDDLAAGQYNYGPTFQGVQRIWRDHATPDVIAEVELPEDTDI  
 DGYGIHPALFDAALHPLALTQPPNTDNTDNTADTGDQVRLPYAFTGISLHATHATRLR  
 VRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPPHPDT  
 TTDTDDTDALRYQVIAEPTQQLPRYLHDLHTSTDHSTTEADVVVWVVPVPSNEELQA  
 HQASDTAVSSRIHTLRTQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPDLAHAA  
 VWGLIRSAQNEHPGRFTLLDNTDNTSDTLTALTLPTRNQLAIRDTIHIPRLTRTAV  
 LTPPDGSGPWRDLTTGKGDLANLALLPTAHTALASGQIRIDVRAAGLNFHDVVVALGLIPD  
 DGFGGEAAGVISEIGPDVYGFVAVGDAVTGMTVSGAFAPSTVADHRMVTIPARWSFPQAA  
 SIPVVFLTAYIALAEISGLSRGQRVLIHAGTGGVGMAIQLAHLGAEVFATASA AKWST  
 LEALGVPDRDHIASSRDLDFSNALFLDATNGAGVDVVLNCLSGEFVEASLALLPRGGHFVEI  
 GKTDIRDTEVIAATHPGVIRYALDLSVSPDHIQRTLAQLSPLFATDTLKLPLPTTNYSIY  
 QAISALRDSQARHTGKIVLTAPVVVDPEGTVLITGGTGLGALFAEHLVSAHGVRHLLL  
 TSRRGPQAHGATDLQQLTDLGAHVTTACDISDPEALAALVNSVPTQHRLTAVVHTAVV  
 LADTPVTELTGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGLGNIAA  
 ANTALDALADYRHLGLPATSLAWGYWQTRTGLTAHLTDVDLARMTRLGLMPIATSHGLA  
 LFDAALATGQPVSI PAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNG  
 LSPQQQQTALTLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLN  
 LSSTLIFDHPTPHAVAEHLLEQIPGIGALVPAPVIAAGRTEEPVAVVGMACRFPGGVAS  
 ADQLWDLVIAGRDVVGNFADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFG  
 ISPREARAMDPQQRLLLEVCWEALETAGIPAHTLAGTSTGVFVGAGAQSYGATNSDGAEG  
 YAMTGGAISVMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNESQLALAGGVTV  
 VMSTPAIFTEFSRQRLAPDGRCKAFAATADGTGFGEAAVLVLERLSEARRNNHPVLAIV  
 VAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPPIEAS  
 ALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPAHLHVDQPS  
 PHIDWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISGNAHLILQPPPTDPTTQTPNPTT  
 SDPAVGSDDPAVGSDDPAVGLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLAT  
 TRSHHPHRATITTSIEHSENNDTTDALAALHALANNGTHPLLSRGLLTPQGPVKTVFV  
 FPGQGSQYPMGADLYRQFPVFAHALDACDAALQPFTHGWSVLAVLHDEPEAPSLERVDV  
 QPVLFVSVMSLAALWRWAGITPDAVIGHSQGEIAAAHVAGALTPEAAAVVALRSRVLTDL  
 LAGAGAMASVLSPEEPLTQLLARWDGKITVAAVNGPASAVVSGDTTAITELLITCEHENI  
 DARAI PVDYPSHSPYMEHIRHQFLDELPELTPRPSTIAMYSTVDGEPHDTAYDTTMTAD  
 YWYRNIRNTVRFHDTVAALLGAGEQVLELSPHPVLTAITDTEVEQAGGGGAAPALRKD  
 RPDVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTAFQHQRYWLLPTAGDFSGANTH

FIGURE 12(continued)

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AMHPLLDTATELAENRGWVFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVA DRAG  
 YSSVNELIVHTPLLLAGHDTADLQITVTD TDDMGRQSLNIHSRPHIGHDNTTTGDEQPEW  
 VLHASAVLTAQTTDHNHPLPTVPWP PPGTAAIEVDDFYDDLAAQGYNYGPTFQGVQRIW  
 RDHATPDV IYAEVELPEDTDIDGYGIHPALFDAALHPLLALTQPPTNDTDDTNTADTG DQ  
 VRLPYAFTGISLHATHATRLRVR LTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATG  
 SAPATTAAGLLHLSWPPHPD TTTDDTDTDALRYRVIAEPTQQLPRYLHDLHTSTDLHTS  
 TTEADV VVWPVPVPSNEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPD TTGTRLVI  
 VTRHG VSTS AHDVPV DLAHA AVWGLIRSAQNEHPGRFTLLD TDDNTNSDTLTALTLPTR  
 ENQLAIRRDTIHIPRLTRHSSDGALTAPVVDPEGTVLITGGTGLGALFAEHLVSAHGV  
 RHLLLSRRGPQAHGATDLQORLTD LGAHVTITACDISDPEALALVNSVPTQHRLTAVV  
 HTAAVLADTFVTELTGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQ  
 GNYAAANTALDALADYRHRLGLPATSLAWGYWQHTGLTAHLTDVDLARMTRLGLMPIAT  
 SHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLAPILSALITTPRRRAASAA TDLA  
 ARLNGLSPQQQQOTLATLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTH  
 NTGLDLPPTLIFDHPTALTQHLHTRLTGALVPAPVVI AAGRTEEPVAVVGMACRFPG  
 GVASADQLWDLVIAGRDVVG NFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDA  
 GFFGISPREARAMDPQORLLLEV CWEALETAGIPANTLAGTSTG VFGAWAQSYGATNSD  
 DAEGYAMTGGAISVMSGRIAYTLGLEGP AITVDTACSSSLVAIHLACQSLRNNESQLALA  
 GGVTVMSTPAVFTDFSRQRLAPDGRCKAFAATADGTGFGEGA AVLVLERLSEARRNNHP  
 VLAIVAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDP  
 IEAGALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAI THATLPATLHVD  
 QPSPHIDWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISG TNAHLILQQPPTPDTTQTPN  
 TTTGSDPAVGSDPAVGVLWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTR  
 SHHPRATITTSIEHSENNDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFP  
 GQGSQYPGMGADLYRQFPVFAHALDACDAALQFFTGW SVLAVLHDEPEAPSLERVDVVQP  
 VLFSVMVSLAALWRWAGITPDAVIGH S QGEIAAAHVAGALTLP EAAAVVALRSRVLTDLA  
 GAGAMASVLSPEEPLTQLLARWDGKITVA AVNGPASAVVSGDTTATITELLITCEHENIDA  
 RAIPVDYPSSHSPYMEHIRHQFLDELPELTPRPSTIAMYSTVDGEPHDTAYDTTMTADY W  
 YRNIRNTVRFHDTVAALLGAGEQVFLELSPHVP LTAITDVEQAGGGGA AVPALRKDRP  
 DAVAFAAALGQLHCHGISPSWNVLYCQARPLTPT YAFQHQRYWLLPTAGDFSGANTHAM  
 HPLD TATELAENRGWVFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVA DRAGYS  
 SVNELIVHTPLLLAGHDTADLQITVTD TDDMGRQSLNIHSHPHIGHDNTTTGDEQPEWVL  
 HASAVLTAQTTDHNHPLPTVPWP PPGTAAIEVDDFYDDLAAQGYNYGPTFQGVQRIWRD  
 HATPDV IYAEVELPEDTDIDGYGIHPALFDAALHPLLALTQPPTNDTDDTNTADTG DQVR  
 LPYAFTGISLHATHATRLRVR LTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSA  
 PATTAAAGLLHLSWPPHPD TTTDDTDTDALRYQVIAEPTQQLPRYLHDLHTSTDLHTSTT  
 EADV VVWPVPVPSNEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPD TTGTRLVIVT  
 RHGVSTS AHDVPV DLAHA AVWGLIRSAQNEHPGRFTLLD TDDNTNSDTLTALTLPTRN  
 QLAI RRTIHIPRLTRTAVLTPD SGPWRLDTTGKGD LANLALLPTAHTALASGQIRIDV  
 RAAGLNFHDVVALGLIPDDGFGGEAAGVISEIGPDVYGF AVGDAVTGMTVSGAFAPSTV  
 ADHRMVTIPARWSFPQAASIPVVF LTAYIALAEISGLSRGQRVLIHAGTGGVGMAAIQL  
 AHHLGAEVFATASAAKWSTLEALGVPRDH IASSRTLD FSNAFLDATNGAGVDVVLNCLSG  
 EFVEASLALLPRGGHFVEIGKTDIRDTEVIAATHPGV IYRALDLSVSPDHIQRTLAQLS  
 PLFATDTLKLPTTNYSIYQAI SALRDM SQARHTGKIVLTAPVVDPEGTVLITGGTGL  
 GALFAEHLVSAHGV RHLLLSRRGPQAHGATDLQORLTD LGAHVTITACDISDPEALAL  
 VNSVPTQHRLTAVVHTAAVLADTFVTELTGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFI  
 MFSSMAGMIGSPGQGN YAAANTALDALADYRHRLGLPATSLAWGYWQHTGLTAHLTDVD  
 LARMTRLGLMPIATSHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLAPILSALIT  
 TPRRAASAA TDLAARL NGLSPQQQQOTLATLVAAATATVLGHHTPESISPATAFKDLGI  
 DSLTALELRNTLTHNTGLNLSSTLIFDHPTPHAVA EHLLEQIPGIGALVPAPVVI AAGRT  
 EEPVAVVGMACRFPGGVASADQLWDLVIAGRDVVG NFPADRGWDVEGLFDPDPDAVGKTY  
 TRYGAFLDDAAGFDAGFFGISPREARAMDPQORLLLEV CWEALETAGIPANTLAGTSTGV  
 FVGAGAQSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGLEGP AITVDTACSSSLVAIHL  
 ACQSLRNNESQLALAGGVTVMSTPAVFTDFSRQRLAPDGRCKAFAATADGTGFGEGA AV  
 LVLERLSEARRNNHPVLAIVAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQV  
 DAVEAHGTGTTLGDP IEAGALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMI  
 QAI THATLPATLHVDQPSPHIDWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISG TNAHL

FIGURE 12(continued)

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ILQQPPTPNPTQTPEDCSPAQSPCATITDAGTGLSFVPWVISAKSAEALSAQASRLLTRL  
DDDPVVDAILGLWSLIATRSMFEHRAVVVGADRHQLQRGLAELASGNLGADVVGRRARA  
GETVMVFPQGSSQRLGMAQLYEQFPVFAAFDDVVDALDQYLRPLRQVMWGDDDEGLLN  
STFEAQPSPSLFAVEVALFALLRFWGVVPDYVIGHSVGELAAQVAGVLSLQDAKLVSARG  
RLMQALPAGGAMVAVAASQHEVEPLLVEGVDAIALNAPGSVVISGDQAAVRLIANRLADR  
GYRAHELAVSHAFHSSLMPEMEEFARLASEIVVEQPQIPLISNVTGQLANADYGSAGYW  
VDHIRRPVRFADSVASLEAMGASCFIEVGPAAGLGAIEQSLKSAEPTVSVSALSTDKPE  
SVAVLRAARLSTSGIPVDWQSVFDGRSTQTVNLPTYAFQRQRFWLDANRIGQGDPAQ  
QAQNVESRFWEAVEREDVDGLADSIGVTASAMQTVLPALSSWRAERTQSELDWRYQVT  
WLSSEPATPSSITLSGIWLLIVPSELAKTDPVIGCAALEAHGALVTIITIIFEPDFNRSLM  
GASLKDIGSHISGVISFLGIHGSEFSDSGAVKTLNLVQAMGDVHLDVPLWCLTQGAVSIS  
ADDLIRCSSAALVWGLGRVVALEHPGSWGGVLDPESPDDAAWERLCALLAQPTDEQFA  
IRPSGVFLRLRIHAPATTTSKSSTAWAPRGTVLITGGTGALGAHVARWLAKHYESVDLLL  
TSRRGMAADGATELVDDLRTAGASVTVHACDVTDRTSVEAAIACKSLDAVFHLAGRHOPT  
LLELEDESFSDELAPKVHGAQVLSDITSNLTLASFVMFSSVAGIWWGKSGQAYAAANAF  
LDSLAEKRRTLGLPATSVAWGLWAGGGMGRPSASGLNLIGLKSMSADLAVQALSADIDR  
PQATLTVASVNWDRFYPTFALARPRPFLHEITEVMAYRESMRSSSASTATLLTSKLAGLT  
ATEQRAVTRKVLVDQAASVLGYASTESLDTHESFKDLGFDSLTALELRDHLQTATGLNLS  
STLIFDHPTPHAVEHLEQIPGIGALVPAPVVAIAGRTEEPVAVVGMACRFPGGVASAD  
QLWDLVIAGRDVVGNFADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGIS  
PREARAMDPQQRLLLEVWCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYA  
MTGGSTSVMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNESQLALAGGVTVM  
STPAIFTEFSRQGLAPDGRCKAFAATADGTGFGEAAVLVLERLSEARRNNHPVLAIVA  
GSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPIEASAL  
HATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPATLHVDQPSPHI  
DWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTDPTTQTPNTTTGSD  
PAVGSDPAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPR  
ATITTSIEHSENNHDTTDLAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGGSQY  
PGMGADLYRQFPVFAHALDACDAALQFTGWSVLAVLHDEPEAPSLERVDDVQPVLFVSM  
VSLAALWRWAGITPDVAVIGHSGQGEIAAAHVAGALTPEAAAVVALRSRVLTDLAGAGAMA  
SVLSPEEPFLTQLLARWDGKITVAAVNGPASAVVSGDTTAITELLITCEHENIDARAI PVD  
YPSHSPYMEHIRHQFLDELPELTTPRPSTIAMYSTVDGEPHDTAYDTTMTADYWYRNIRN  
TVRFHDTVAALLGAGEQVFELESPHPVLTQAITDVEQAGGGGAAPALRKDRPDAVAF  
AALGQLHCHGISPSWNVLYCQARPLTLPTYAFQHQRWLLPTAGDFSGANTHAMHPLD  
ATELAENRGWVFTGRISPRTPQFWLNEHSAVLFPGTGFEALHVAADRAGYSSVNELI  
VHTPLLLAGHDTADLQITVTDTDMDGRQSLNIHSHPHIGHDNTTTGDEQFEWVLHASAVL  
TAQTTDHNHLPLTPVPVPPPGTAAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDV  
IYAEVELPEDTIDIGYGIHPALFDAALHPLLALTQPPNTDNTDNTADTGDQVRLPYAFT  
GISLHATHATRLRVLRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAA  
GLLHLSWPPHPDTTTTDTDTDALRYQVIAEPTQQLPRYLHDLHTSTTEADVVPVFPVP  
SNEELQAHQASDTAVSSRIHTLTRQTLTVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPV  
PDLAAHVAWGLIRSAQNEHPGRFTLLDNTDNTSDTLTALTPTRENQLAIRRDTIHIP  
RLTRHSSDGALTAPVVVDPEGTVLITGGTGLGALFAEHLVSAHGVRLHLLTSRRGPQAH  
GATDLQQLRLDLAGHVTITACDISDPEALAAALVNSVPTQHRLTAVVHTAAVLADTPVTEL  
TGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNAAAANTALDALA  
DYRHLGLPATSLAWGYWQTHGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATG  
QPVSIPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPQQQQQT  
LATLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHTGLDLPPTLIFDH  
PTPHAVEHLEQIPGIGALVPAPVVAIAGRTEEPVAVVGMACRFPGGVASADQLWDLVI  
AGRDVVGNFADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAM  
DEQQRLLLEVWCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGSTS  
VMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNESQLALAGGVTVMSTPAVFT  
EFSRQGLAPDGRCKAFAATADGTGFGEAAVLVLERLSEARRNNHPVLAIVAGSAINQD  
GASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPIEASALHATYGH  
HTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPATLHVDQPSPHIDWSSGTV  
RLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTDPTTQTPNTTTGSDPAVGSDP  
AVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTSI

FIGURE 12(continued)

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EHHSENNHDTTDLAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGSGQYPMGADL  
 YRQFPVFAHALDACDAALQPFTGWSVLAVLHDEPEAPSLERVDVVQPVLFVSMVSLAALW  
 RWAGITPDAVIGHSQGEIAAAHVAGALTLPEAAAVVALRSRVLTDLGAGAMASVLSPEE  
 PLTQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDARAI PVDYPSHSPY  
 MEHIRHQFLDELPELTTPRPSTIAMYSTVDGEPHDTAYDTTMTADYWRNIRNTVRFHDT  
 VAALLGAGEQVFLELSPHPVLTQAITDVEQAGGGGAAPALRKDRPDVAFAAALGQLH  
 CHGISPSWNVLYCQARPLTLPTAFQHQRYWLLPTAGDFSGANTHAMHPLLDLTATELAEN  
 RGWVFTGRISERTQPWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLLL  
 AGHDTADLQITVTDTDMMGRQSLNIHSRPHIGHDNTTTGDEQPEWVLHASAVLTAQTDDH  
 NHLPLTPVPWPPPGTAAIEVDFFYDDLAAQGYNYGPTFGVQRIWRDHATPDVIYAEVEL  
 PEDTDIDGYGIHPALFDAALHPLLALTQPPNTDDTNTADTGQVRLPYAFTGISLHAT  
 HATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSW  
 PPHPDTTDDTDDTDLALRYQVIAEPTQQLPRYLHDLHTSTDLHTSTTEADV VVWPVPVS  
 NEELQAHQASDTAVSSRIHTLRQTLTVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVP  
 DLAAHA VWGRLIRSAQNEHPGRFTLLDNTNSDTLTALTLPPTRENQLAIRRDTIHIPR  
 LTRTA VLTTPDPSGPWRLDTTGKGDLANLALLPTAHTALASGQIRIDVRAAGLNFDVVA  
 LGLIPDDGFGGEAAGVISEIGPDVYGFVAGDAVTGMTVSGAFAPSTVADHRMVM TIPARW  
 SFPQAASI PVVFLTAYIALAEISGLSRGQRVLIHAGTGGVGMMAIQLAHLGAEVFATAS  
 AAKWSTLEALGVPRDHIASSRTLD FSNAFLDATNGAGVDVVLNCLSGEFVEASLALLPRG  
 GHFVEIGKTDIRDTEVIAATHPGVIYRALDLSVSPDHIQRTLAQLSPLFATDTLKLPT  
 TNSIYQAIASALRDMSQARHTGKIVLTAPVVVDPEGTVLITGGTGLGALFAEHLVSAHG  
 VRHLLLT SRGFPQAHGATDLQQLTDLGAHVITACDISDPEALAALVNSVPTQHRLTAV  
 VHTAAVLADTPVTELTGQDLQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPG  
 QGNYAAANTALDALADYRHLGLPATSLAWGYWQTRTGTAHLTDVDLARMTRLGLMPIA  
 TSHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLTPILSALITTPRRRAASAATDL  
 AARLNGLSPOQQOQLATLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLT  
 HNTGLDLPPTLIFDHPTPTALTQHLHTRLTGALVPAPVIAAGRTEEPVAVVGMACREFP  
 GGVASADQLWDLVIAGRDVVGNF PADRGWDVAGLFDPPDPAVGKTYTRYGAFLDDAAGFD  
 AGFFGISPREARAMDPOQRLLLEVCEWAELETAGIPAHTLAGTSTGVFVGAGAQS YGATNS  
 DDAEGYAMTGGAISVMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNEQLAL  
 AGGVTVMSTPAVFTDFSRQRLAPDGRCKAFAATADGTGFGEGA AVLVLERLSEARRNNH  
 PVLAI VAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGD  
 PIEAGALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAGVVVKMIQAITHATLTPATLHV  
 DQPSPHIDWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTP  
 NPTTGSDPAVGSDS AVGSDPAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVA  
 HSLATTRSHHPRATITTSIEHSENNHDTTDLAALHALANNGTHPLLSRGLLTPOGPG  
 KTVFVFPQGSGQYPMGADLYRQFPVFAHALDEVAALNPHLDVALLEVMSQODTAMAQ  
 LLDQTFYAQPALFALGTALHRLFTHAGIHPDYLLGHSIGELTAAYAAGVLSLQDAATLVT  
 SRGRMQSCTPGGTMLALQASEAEVQPLLEGLDHAVSIAAINGATSVILSGDHDSLEQIG  
 EHFITQDRRTTRLQVSHAFHSPHMDPILEQFRQIAAQLTFSAPTLPILSNLTGQIARHDQ  
 LASPDYWTQQLRNTVRFHDTVAALLGAGEQVFLELSPHPVLTQAITDVEQAGGGGAAP  
 ALRKDRPDVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTAFQHQRYWLLPTAGDFS  
 GANTHAMHPLLDLTATELAENRGWVFTGRISPRTPWLNEHAVESAVLFPNTGFVELALHV  
 ADRAGYSSVNELIVHTPLLLAGHDTADLQITVTDTDMMGRQSLNIHSRPHIGHDNTTTGD  
 EQPEWVLHASAVLTAQTDDHNLPLTPVPWPPPGTAAIEVDFFYDDLAAQGYNYGPTFG  
 VQRIWRDHATPDVIYAEVELPEDTDIDGYGIHPALFDAALHPLLALTQPPNTDDTNTA  
 DTGDQVRLPYAFTGISLHATHATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPL  
 TTATGSAPATTAAGLLHLSWPPHPDTTDDTDDTDLALRYQVIAEPTQQLPRYLHDLHT  
 STDLHTSTTEADV VVWPVPVPSNEELQAHQASDTAVSSRIHTLRQTLTVQDWLTHPDT  
 TGTRLVIVTRHGVSTSAHDPVPDLAAHA VWGRLIRSAQNEHPGRFTLLDNTNSDTLT  
 ALTLPPTRENQLAIRRDTIHIPRLTRHSSDGALTAPVVVDPEGTVLITGGTGLGALFAEH  
 LVSAGHVRHLLLT SRGFPQAHGATDLQQLTDLGAHVITACDISDPEALAALVNSVPTQ  
 HRLTAVVHTAAVLADTPVTELTGQDLQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAG  
 MIGSPGQGNYAAANTALDALADYRHLGLPATSLAWGYWQTHGLTAHLTDVDLARMTRL  
 GLMPIATSHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLAPILSALITTPRRRAA  
 SAATDLAARLNGLSPOQQOQLATLVAAATATVLGHHTPESISPATAFKDLGIDSLTALE  
 LRNTLTHTNTGLDLPPTLIFDHPTPTALTQHLHTRLTQIESPNSEDSMLNLKNDRIESYI  
 FRNSGEDRAHVIANRLRSILSKWDGTRSPELPAELHLESATDDELFLANMFRTPTSEIS  
 PTLEGGRGVN\*

FIGURE 12(continued)



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## MlsA2 protein

VVSTEENLRVYLKQVITDLHQMQARLRKIEKQRSERVAVVGMACRFPGGVASADQLWDLV  
 IAGRDVVGNF PADRGWVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARA  
 MDPQQRLLLEVCWEALETAGIPAHTLACTSTGVFVGAWAQSYGATNSDGAEGYAMTGGST  
 SVMSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNESQLALAGGVTVMSTPAVF  
 TEFSRQRGLAPDGRCKAFAATADGTGWGEGA AVLVLERLSEARRNNHPVLAIVAGSAINQ  
 DGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDPFEASALHATYGH  
 HHTPDQPLWLGSIKSNIGHTQAAAGAAGVVVKMIQAITHATLPAHLHVDQPSPHIDWSSGT  
 VRLLEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTPNTTTGSDPAVGSD  
 SAVGSDPAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHR  
 ATITTSIEHHSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGGSQY  
 PGMGADLYRQFPVFAHALDEVAAALNPHLDVALLEVMSQODTAMAQLLDQTFYAQPALE  
 ALGTALHRLFTHAGIHPDYLLGHSIGELTAAYAAGVLSLQDAATLVTSRGRMLQSCTPGG  
 TMLALQASEAEVQPLLEGLDHAVSIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTTRL  
 QVSHAFHSPHMDPILEQFRQIAAQLTFSAPTLPILSNLTGQIARHDQLASPDYWTQQLRN  
 TVRFHDTVAALLGAGEQVFELESPHPVLTQAITDTVEQAGGGGAAPALRKDRPDVAFA  
 AALGQLHCHGISPSWNVLYCQARPLTLPYAFQHQRWLLPTAGDFSGANTHAMHPLLDLT  
 ATELAENRGWVFTGRISPRTPQFWLNEHAVESAVLFPGTGFEVALHADVADRAGYSSVNELI  
 VHTPLLLAGHDTADLQITVTDTDMDGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVL  
 TAQTTDHNHPLPLTPVPWPPPGTAAIEVDIFYDDLAAGQYNYGPTFQGVQRIWRDHATPDV  
 IYAEVELPEDTDIDGYGIHPALFDAALHPLLALTQPPNTDNTDNTADTGDQVRLPYAFT  
 GISLHATHATRLRVRRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAA  
 GLLHLSWPPHPDITTTDITD DALRYQVIAEPTQQLPRYLHDLHTSTD LHTSTTEADV V  
 WVPVPSPNEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVST  
 SAHDPVPDLAHA AVWGLIRSAQNEHPGRFTLLD DDDNTNSDTLTALTLP TRENLAIRR  
 DTIHIPRLTRTAVLT PPD SGFWRLDTTGKGLANLALLPTAHTALASGQIRIDVRAAGLN  
 FHDVVVALGLIPDDGFGGEAAGVISEIGPDVYGFVAGDAVTGMTVSGAFAPSTVADHRMV  
 MTIPARWSFPQAASIPVVF LTAYIALAEISGLSRGQVRVLIHAGTGGVGMAAIQLAHHLGA  
 EVFATASAAKWSTLEALGVPRDHIASSRTLD FSNAFLDATNGAGVDVVLNCLSGEFVEAS  
 LALLPRGGHFVEIGKTDIRDTEVIAATHPGVIYRALDLLSVSPDHIQRTLAQLSPLFATD  
 TLKPLPTTNYSIYQAISALRDMSQARHTGKIVLTAPVVVDPEGTVLITGGTGTLGALFAE  
 HLVSANHGVRHLLLT SRRGPOAHGATDLQQRLTDLGAHVTITACDISDPEALAALVNSVPT  
 QHRLTAVVHTAAVLADTPVTELTGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMA  
 GMIGSPGQGN YAAANTALDALADYRHRLGLPATSLAWGYWQTRTGVTALHTD VDLARMTR  
 LGLMPIATSHGLALFDAALATGQPVSI PAPINTHTLARHARDNTLTPILSALITTPRRRA  
 ASAATDLAARLNGLSPPQQQQTLATLVAAATATVLGHHTPESISPATAFKDLGIDSLTAL  
 ELRNTLTHNTGLDLPPTLI FDHPTPHALTQHLHTRLTQSHTPVGP IASLLSHAIDEGKFR  
 AGADLLMAASNINQSFSNMAELNQLPAVTDIADASPDGLLTLCISTSENEYARLAAANI  
 HSLTFAEIAAPGFYDAQLPNSIETSAEALATAITGAYANTSIVLVAHSIVCELAQATMTR  
 LQDADIDLVLGLVLLDPLEGTNSTEDYVETVLTRIEHINAPRVGVDGYLAALGRYLQFHED  
 RRIPIPETRHMTLHSDTKIDRAQTPMNLQDEAALTALKIGNWMNDTGSIAVTLRDGPVF  
 LGRARSVNMR\*

FIGURE 13

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## MslB protein

VIFGDAHQNCRGGRVLGDAVAVVGMSCRVPGASDPDALWALLRDGISVVDEIP SARWNLD  
 GLVAHRLTDEQRSALRHGAFLDDVEGFDAAFFGINPSEAGSMDPQQRLMLELTWAALEDA  
 RIVPEHLSSGSSGVFTGAMSDDYTTAVTYRAAMTAHTFAGTHRS LIANRVSYTLGLRGPS  
 LVIDTGQSSSLVAVHVAMESLRREETSLAIAGGIHLNLSLAAALSAAHFGALSPDGRCYT  
 FDRANGYVRGEGGGVVVLKRLNDALADGNHIYCVIRGSSVNNDGATQDLTAPGVDGQRQ  
 ALLQAYERAETIDPSEVQYVELHGTGTRLGDPTEAHSLSHVEGTSTVPRSPLLVGSIKTNI  
 GHLEGAAGILGLIKTALAVHHRQLPPSLNYTPVNPKIPLQLGLRVQTTLSEWPDLDKPL  
 TAGVSSFSMGGTNAHLILQQPPTPDTTQTPNPTTGSDPAVGSDPAVGVLVWPLSARSAPG  
 LSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRATITTSIEHHSENNHDTTDALAA  
 LHALANNGTHPLLSRGLLTPOGPCKTVFVFPQGSQYPGMGADLYRQFPVFAHALDEVAA  
 ALNPHLDVALLEVMSQQDTAMAQLLDQTFYAQPALFALGTALHRLFTHAGIHPDYLLGH  
 SIGELTAAYAAGVLSLQDAATLVTSRGRMQSCTPGGTMLALQASEAEVQPLLEGLDHAV  
 SIAAINGATSIDVLSGDHDSLEQIGEHFITQDRRTTRQLQVSHAFHSPHMDPILEQFRQIAA  
 QLTFSAPTLPILSNLTGQIARHDQLASPDYWTQQLRNTVRFHDTVAALLGAGEQVFLELS  
 PHPVLTQAITDVEQAGGGGAAPALRKDRPDAAFAAALGQLHCHGISPSWNVLYCQAR  
 PLTLPTYAFQHORYWLLPTAGDFSGANTHAMHPLLDTATELAENRGWVFTGRISPRTQPW  
 LNEHAVESAVLFPNTGFVELALHVADRAGYSSVNELIVHTPLLLAGHDTADLQITVTDTD  
 DMGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVLTAQTDDHNLPLTPVPWPVPGTA  
 AIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVYIAEVELPEDTIDGYGIHPALF  
 DAALHPLLALTPOPTNDTDDTNTADTGDQVRLPYAFTGISLHATHATRLRVRLTRTGADA  
 ITVHTSDTTGAPVAIIDSLITRELTATGSAPATTAAGLLHLSWPPHPDPTTDTDTDTDA  
 LRYQVIAEPTQQLPRYLHDLHTSTDLHTSTTEADVVPVPSNEELQAHQASDTAVSS  
 RIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPDLAAHAAVWGLIRSAQN  
 EHPGRFTLLDNTNSDTLTALTPTRENQLAIRRDTIHPRLTRHSSDGALTAPVVV  
 DPEGTVLITGGTGLGALFAEHLVSAHGVRHLLTSRRGPQAHGATDLQQLTDLGAHVT  
 ITACDISDPEALAAALVNSVPTQHRLTAVVHTAAVLADTPVELTGDQLDQVLAPKIDAAW  
 QLHLQTYEHNLSAFIMFSSMAGMIGSPGQGNVAAANTALDALADYRHLGLPATSLAWGY  
 WQHTHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPVSIAPINTHTLARH  
 ARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPOQQQQTALTLVAAATATVLGHHT  
 PESISPATAFKDLGIDSLTALELRNTLTHNTGLNLSSTLIFDHPTPHAVAEHLEQIPGI  
 GALVPAPVVAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIAGR DVVGNFPADRGWDV  
 EGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDPQQRLLLEVWCWEALET  
 AGIPAHTLAGTSTGVFVGAWAQSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGLEGPAT  
 TVDTACSSSLVAIHLACQSLRNNSQLALAGGVTVMSTPAVTEFESRQRGLAPDGRCKAF  
 AATADGTGWGEGA AVLVLRLSEARRNNHPVLAIVAGSAINQDGASNGLTAPHGPSQQRV  
 INQALANAGLTHDQVDAVEAHGTGTLGDP IEASALHATYGHHTPDQPLWLGSIKSNIG  
 HTQAAAGAAGVVKMIQAITHATLPLTHVDQPSPHIDWSSGTVRLLEPIQWPNTDHPRT  
 AAVSSFGISGTNAHLILQQPPTPNPTQTPEDCSPAQSPCATITDAGTGLSFVPWVISAKS  
 AEALSAQASRLRLRLDDDPVDAIDLGWSLIATRSMFEHRAVVVGADRHQLQRGLAELAS  
 GNLGADVVGRRARAAGETVMVFPGQGSQRLGMAQLYEQFPVFAAFDDVVDALDQYLRL  
 PLRQVMWGDDDEGLLNSTEFAPQPSLFAVEVALEFALLRFWGVVPDYVIGHSVGELAAQVAG  
 VLSLQDAAKLVASARGRLMQALPAGGAMVAVAASQHEVEPLLVEGV DIAALNAPGSVVISG  
 DQAAVRLIANRLADRGYRAHELAVSHAFHSSLMEPMLEEFARLASEIIVEQFQIPLISNV  
 TGQLANADYGSAGYWDHIRRVPVRFADSVASLEAMGASCFIEVGPASGLGAAIEQSLKSA  
 EPTVSVSALSTDKPESVAVLRAAARLSTSGIPVDWQSVFDRSTQT VNLPTYAFQRQRFW  
 LDANRIGQGPASQFQAQNVESRFWEAVEREDVDGLADSIGVTASAMQTVLPALSSWRRRA  
 ERTQSELD SWRYQVTVLSSPATPSSITLSGIWLLIVPSELAKTDPVIGCAAALAEAHGALV  
 TIITIFEPDFNRSIMGASLKDIGSHISGVISFLGIHGSEFSDSGAVKTLNLVQAMGDVHL  
 DVPLWCLTQGA VVISADDLIRCSSAALVWGLGRVVALEHPGSGWGLVDLPESPDDA AWER  
 LCALLAQPTDEDQFAIRPSGVFLRRLIHAPATTTSKSSTAWAPRGTVLITGGTGALGAHV  
 ARWLAKHYESVDLLLTSSRGMAADGATELVDDLRTAGASVTVHACDVTDRTSVEAAIAGK  
 SLDAVFHLAGRHOPTLLTELEDESFSDELAPKVHGAQVLSDITSNLTLSAFVMFSSVAGI  
 WGGKSQGAYAAANAF LDSLAEKRRTLGLPATSVAWGLWAGGGMGRPSASGLNLIGLKSM  
 SADLAVQALS DAIDRQATLTVASVNWDRFYPTFALARPRFLHEITEVMAYRESMRSSS  
 ASTATLLTSKLAGLTATEQRAVTRKVLVDQAASVLGYASTESLDTHESFKDLGFDLSLTAL

FIGURE 14

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ELRDHLQTATGLNLSSTLI FDHPTPHAVAEHLLEQIPGIGALVPAPVVIAAGRTEEPVAV  
VGMACRFPGGVASADQLWDLVIAGR DVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAF  
LDDAAGFDAGFFGISPREARAMDPQQRLLLEVCWEALETAGIPAHTLAGTSTGVFVGAWA  
QSYGATNSDDAEGYAMTGGATSVMSGRIAYTLGLEGPATITVDTACSSSLVAIHLACQSLR  
NNESQLALAGGVTVMSTPAVFTEFSRQRGLAPDGRCKAFAATADGTGWGEGA AVLVLERL  
SEARRNNHPVLAIVAGSAINQDGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAH  
GTGTTLGDP IEASALHATYGHHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAI THA  
TLPATLHVDQPSPHIDWSSGTVRLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQPP  
TPNPTQTPEDCSPAQSPCATITDAGTGLSFVPWVISAKSAEALSAQASRLLTRLDDDPVV  
DAIDLGLSLIATRSMLFEHRAVVVGADRHQLQRGLAELASGNLGADV VVGRARAAGETVMV  
FPGQGSQRLMGAAQLYEQFPVFAAFDDVDALDQYLRLPLRQVMWGDDDEGLLNSTEF AQ  
PSLFAVEVALFALLRFWGVVPDYVIGH SVGELAAQVAGVLSLQDAAKLV SARGRLMQAL  
PAGGAMVAVAAASQHEVEPLLVEGVDIAALNAPGSVVISGQAAVRLIANRLADRGYRAHE  
LAVSHAFHSSLMEMPMEEFARLASEIVVEQPQIPLISNVTGQLANADYGSAGYWDHIRR  
PVRFADSVASLEAMGASC FIEVG PASGLGAAIEQSLKS AEPTVSVSALSTDKPESVAVLR  
AAARLSTSGIPVDWQSVFDGRSTQTVNLP TYAFQRQRFLDANRIGQGD PASQPQAQNV  
SRFEWAVEREDVDGLADSIGVTASAMQTVLPALSSWRRRAERTQSELD SWRYQVTWLSSPA  
TPSSITLSGIWLLIVPSELAKTDPVIGCAAAL EAHGALVTIITIFEPDFNRSLMGASLKD  
IGSHISGVISFLGIHGSEFSDSGAVKTLNLVQAMGDVHLDVPLWCLTQGA VSI SADDLIR  
CSSAALVWGLGRVVALEHPGSWGGLVDLPESPDAAWERLCALLAQPTDEDQFAIRPSGV  
FLRRLIHAPATTTSKSS TAWAPRGTVLITGGTGALGAHVARWLAKHYESVDLLTSRRGM  
AADGATELVDDLRTAGASVTVHACDVTDRTSVEAAIAGKSLDAVFHLAGRHOPTLLTELE  
DESFSDELAPKVHGAQVLS DITSNLTL SAFVMFSSVAGIWGKSGQAYAAAANAF LDSLAE  
KRRTLGLPATSVAVGLWAGGMDRPSASGLNLIGLKSMSADLAVQALS DAIDRPOATLT  
VASVNWDRFYPTFALARPRPFLHEITEVMAYRESMRSSSASTATLLTSKLAGLTATEQRA  
VTRKLVLDQAASVLGYASTESLDTHESFKDLGFDLSLTAL ELRDHLQTATGLNLSSTLI FD  
HPTPHAVAEHLLEQIPGIGALVPAPVVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLV  
IAGR DVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAF LDDAAGFDAGFFGISPREARA  
MDPQQRLLLEVCWEALETAGIPAHTLAGTSTGVFVGAWAQSYGATNSDDAEGYAMTGGAI  
SVMSGRIAYTLGLEGPATITVDTACSSSLVAIHLACQSLRNNESQLALTGGVTVMSTPAIF  
TEFSRQRGLAPDGRCKAFAATADGTGWGEGA AVLVLERLSEARRNNHPVLAIVAGSAINQ  
DGASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTTLGDP IEASALHATYGH  
HHTPDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAI THATLPATLHVDQPSPHIDWSSGT  
VRLLEPIQWPNTDHPRTAAVSSFGISGTNAHLILQPPPTPDTTQTPNTTSGSDPAVGSD  
PAVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTS  
IEHSENNDHTTDLAALHALANNGTHP LLSRGLLTPOGPGKTVFVFPQGSGQY PGMGAD  
LYRQFPVFAHALDACDAALQPTTGWSVLAVLHDEPEAPSLERVDVVPVLFVSMVSLAAL  
WRWAGITPD AVIGHSGEIAAAHVAGALTPEAAAVVALRSRVLTDLAGAGAMASVLSPE  
EPLTQLLARWDGKITVA AVNGPASAVVSGDTTATELLITCEHENIDARAIPVDYPSHSP  
YMEHIRHQFLDELPELT PRPSTIAMYSTVDGEPHDTAYDTTMTADYWRNIRNTVRFDH  
TVAALLGAGEQVFL ELS PHPVLTQAITDTVEQAGGGGA AVPALRKDRPDAVAFAAALGQL  
HCHGISPSWNVLYCQARPLTLPT YAFQHQR YWLLPTAGDFSGANTHAMHPLLD TATELAE  
NRGWFTGRISPRTPQWLNEH AVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLL  
LAGHDTADLQITVTD TDDMGRQSLNIHSRPHIGHDNTTTGDEQPEWVLHASAVLTAQT TD  
HNHLPLTPVWPPPGTAAIEVDDFYDDLAAQGYNYGPTFQGVQRIWRDHATPDVIYAEVE  
LPEDTDIDGYGIHPALF DAALHPLLALTQPTNDTDDTNTADTGDQVRLPYAFTGISLHA  
THATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLS  
WPPHPD TTTDTDT DALRYQVIAEPTQQLPRYLHDLHTSTDLHTSTTEADV VVWPVPVP  
SNEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHPV  
PDLAAHAAVWGLIRSAQNEHPGRFTLLD TDDNTNSDTLTALTLP TRENQLAIRRDTIHIP  
RLTRHSSDGALTAPVVVDPEGTVLITGGTGTLGALFAEHLVSAHGVRHLLLSRRGPQAH  
GATDLQQRITDLGAHVITITACDISDPEALALVNSVPTQHRLTAVVHTAAVLADTPVTEL  
TGDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPQGQNYAAANTALDALA  
DYRHRLGLPATSLAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLALF DAALATG  
QPVSIPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLS PQOQQOQT  
LATLVAAATATVLGHHTPESISPATAFKDLGIDSLTAL ELRLNTLTHNTGLDLPPTLI FDH  
PTPHAVAEHLLEQIPGIGALVPAPVVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVI

FIGURE 14(continued)

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AGRDVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAM  
 DPQORLLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGSTS  
 VMGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNESQLALAGGVTVMSTPAVFT  
 EFSRQGLAPDGRCKAFAATADGTGFGEAAVLVLERLSEARRNNHPVLAIVAGSAINQD  
 GASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTLGDPIEASALHATYGGH  
 HTPDQPLWLGSIKSNIGHTQAAAAGAAGVVKMIQAITHATLTPATLHVDQPSPHIDWSSGT  
 RLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTPNPTTGSDFAVGSDP  
 AVGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRATITTSI  
 EHSENNHDTTDALAALHALANNGTHPLLSRGLLTPQGPVKTVFVFPQGSQYPGMGADL  
 YRQFPVFAHALDEVAALNPHLDVALLEVMSQODTAMAQLLDQTFYAQPALFALGTALH  
 RLFTHAGIHPDYLLGHSIGELTAAYAAGVLSLQDAATLVTSRGRMLQSCPTGGTMLALQA  
 SEAEVQPLLEGLDHAIVSIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTTRLQVSHAFH  
 SPHMDPILEQFRQIAAQLTFSAPTLEPILSNLTGQIARHDQLASPDYWTQQLRNTVRFHDT  
 VAALLGAGEQVFLELSPHPVLTQAITDTVEQAGGGGAAPALRKDRPDVAFAAALGQLH  
 CHGISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAMHPLLDTATELAEN  
 RGWVFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLLL  
 AGHDTADLQITVTDTDMMGRQSLNIHSRPHIGHDNTTTGDEQPEWVLHASAVLTAQTTDH  
 NHLPLTPVPWPPGTAAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVIYAEVEL  
 PEDTDIDGYGIHPALFDAALHPLLALTQPPNTDDTNTADTGDQVRLPYAFTGISLHAT  
 HATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSW  
 PPHPTTTTDDTDDALRYQVIAEPTQQLPRYLHDLHTSTDLTSTTEADVVPVVPVPS  
 NEELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVP  
 DLAAHAUVGLIRSAQNEHPGRFTLLDNTDNTSDTLTALTLPTRNQLAIRRDTHIPIR  
 LTRHSSDGALTAPVVVDPEGTVLITGGTGTGLGALFAEHLVSAHGVRHLLLSRRGPQAHG  
 ATDLQORLTDLGAHVTTTACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELT  
 GDQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNAAAANTALDALAD  
 YRHLGLPATSLAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQ  
 PVSIPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPPQQQOTL  
 ATLVAATATVGLHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLDLPLPTLIFDHP  
 TPHAVAEHLLEQIPGTGALVPAAPVVIAGRTEEPVAVVGMACRFPGGVASADQLWDLVIA  
 GRDVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMD  
 PQORLLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGATSV  
 MSGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNESQLALAGGVTVMSTPAVFT  
 FSRQGLAPDGRCKAFAATADGTGFGEAAVLVLERLSEARRNNHPVLAIVAGSAINQDG  
 ASNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTLGDPIEASALHATYGGHH  
 TPDQPLWLGSIKSNIGHTQAAAAGAAGVVKMIQAITHATLTPATLHVDQPSPHIDWSSGT  
 RLLTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTPNPTTGSDFAVGSDPA  
 VGVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPHRATITTSIE  
 HHSENNHDTTDALAALHALANNGTHPLLSRGLLTPQGPVKTVFVFPQGSQYPGMGADLY  
 RQFPVFAHALDACDAALQFTGWSVLAVLHDEPEAPSLERVVQPVLFVSMVSLAALWR  
 WAGITPDAVIGHSQGEIAAAHVAGALTPEAAAVVALRSRVLTDLGAGAMASVLSPEEP  
 LTQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDARAIPVDYPSHSPYM  
 EHIRHQFLDELPELTTPRSTIAMYSTVDGEPHTAYDTTMTADYWRNIRNTVRFHDTV  
 AALLGAGEQVFLELSPHPVLTQAITDTVEQAGGGGAAPALRKDRPDVAFAAALGQLHC  
 HGISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAMHPLLDTATELAENR  
 GWVFTGRISPRTPQWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLLLA  
 GHDTADLQITVTDTDMMGRQSLNIHSHPHIGHDNTTTGDEQPEWVLHASAVLTAQTTDHN  
 HLPLTPVPWPPGTAAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVIYAEVELP  
 EDTDIDGYGIHPALFDAALHPLLALTQPPNTDDTNTADTGDQVRLPYAFTGISLHATH  
 ATRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSW  
 PPHPTTTTDDTDDALRYRVIAEPTQQLPRYLHDLHTSTDLTSTTEADVVPVVPVPSN  
 EELQAHQASDTAVSSRIHTLTRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVPD  
 LAHAUVGLIRSAQNEHPGRFTLLDNTDNTSDTLTALTLPTRNQLAIRRDTHIPIRL  
 TRHSSDGALTAPVVVDPEGTVLITGGTGTGLGALFAEHLVSAHGVRHLLLSRRGPQAHGA  
 TDQLQRLTDLGAHVTTTACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELTG  
 DQLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNAAAANTALDALADY  
 RHRLGLPATSLAWGYWQHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQP

FIGURE 14(continued)

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VSIPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPPQQQQQT  
 TLVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLDLPPTLIFDHPT  
 PHAVAEHLEQIPGIGALVPAPVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIAG  
 RDVVGNFADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDP  
 QORLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGATSVM  
 SGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVMSTPAVFTEF  
 SRQGLAPDGRCKAFAATADGTGFGEGAALVLERLSEARRNNHPVLAIVAGSAINQDGA  
 SNGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTLGDPIEASALHATYGHHT  
 PDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPATLHVDQPSPHIDWSSGTVRL  
 LTEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTNTTTGSDPAVGSDPAV  
 GVLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTSIEH  
 HSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGGSQYPGMGADLYR  
 QFPVFAHALDACDAALQPFTGWSVLAVLHDEPEAPSLERVDVVPVLFVSMVSLAALWRW  
 AGITPDAVIGHSQGEIAAAHVAGALTPEAAAVVALRSRVLTLAGAGAMASVLSPEEPL  
 TQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDARAI PVDYPSHSPYME  
 HIRHQFLDELPELTPRPSTIAMYSTVDGEPHDTAYDTTMTADYWRNIRNTVRFHDTVA  
 ALLGAGEQVFLELSPHPVLTQAITDTVEQAGGGGAAPALRKDRPDAVAFAAALGQLHCH  
 GISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAMHPLLDATELAENRG  
 WVFTGRISPRTQFWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLLLAG  
 HDTADLQITVTDTDMDGRQSLNIHSRPHIGHDNTTTGDEQPEWVLHASAVLTAQTDDHNL  
 LPLTPVWPFPPTGTAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVIAEVELPE  
 TDDIDGYGIHPALFDAALHPLLALTQPPTNDTDDTNTADTGDQVRLPYAFTGISLHATHA  
 TRLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPP  
 HPDTTDDTDDTDALRYQVIAEPTQQLPRYLHDLHTSTDHSTTEADVVPVVPVPSNE  
 ELQAHQASDTAVSSRIHTLRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVDDL  
 AHAHVWGLIRSAQNEHPGRFTLLDNTNSDTLTALTLPPTRENQLAIRRDTIHIPRLT  
 RHSSDGALTAPVVVDPEGTVLITGGTGLGALFAEHLVSAHGVRHLLTSRRGPQAHGAT  
 DLQORLTDLGAHVTTACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELTGD  
 QLDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPQGNYAAANTALDALADYR  
 HRLGLPATSLAWGYWHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPV  
 SIPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPPQQQQQT  
 LVAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLDLPPTLIFDHPT  
 HAVAEHLEQIPGIGALVPAPVIAAGRTEEPVAVVGMACRFPGGVASADQLWDLVIAGR  
 DVVGNFPADRGWDVEGLFDPDPDAVGKTYTRYGAFLDDAAGFDAGFFGISPREARAMDP  
 QORLLEVCWEALETAGIPAHTLAGTSTGVFAGAWAQSYGATNSDDAEGYAMTGGATSVM  
 SGRIAYTLGLEGPATVDTACSSSLVAIHLACQSLRNNEQLALAGGVTVMSTPAVFTEFS  
 RQGLAPDGRCKAFAATADGTGFGEGAALVLERLSEARRNNHPVLAIVAGSAINQDGAS  
 NGLTAPHGPSQQRVINQALANAGLTHDQVDAVEAHGTGTLGDPIEASALHATYGHHT  
 PDQPLWLGSIKSNIGHTQAAAGAAGVVKMIQAITHATLPATLHVDQPSPHIDWSSGTVRL  
 TEPIQWPNTDHPRTAAVSSFGISGTNAHLILQQPPTPDTTQTNTTTGSDPAVGSDPAVG  
 VLVWPLSARSAPGLSAQAARLYQHLSAHPDLDPIDVAHSLATTRSHHPRATITTSIEH  
 SENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQGGSQYPGMGADLYRQ  
 FFPVFAHALDEVAALNPHLDVALLVFMFSQDDTAMAQLLDQTFYAQPALFALGTALHRLF  
 THAGIHPDYLLGHSIGELTAAYAAGVLSLQDAATLVTSRGRMQSCTPGGTMLALQASEA  
 EVQPLLEGLDHAVSIAAINGATSIVLSGDHDSLEQIGEHFITQDRRTTRLQVSHAFHSPH  
 MDPILEQFRQIAAQLTFSAPTLPLLSNLTGQIARHDQLASPDYWTQQLRNTVRFHDTVAA  
 LLGAGEQVFLELSPHPVLTQAITDTVEQAGGGGAAPALRKDRPDAVAFAAALGQLHCHG  
 ISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAMHPLLDATELAENRGW  
 VFTGRISPRTQFWLNEHAVESAVLFPGTGFVELALHVADRAGYSSVNELIVHTPLLLAGH  
 DTADLQITVTDTDMDGRQSLNIHSRPHIGHDNTTTGDEQPEWVLHASAVLTAQTDDHNL  
 PLTPVWPFPPTGTAIEVDDFYDDLAAQGYNYGPTFGQVQRIWRDHATPDVIAEVELPED  
 TDDIDGYGIHPALFDAALHPLLALTQPPTNDTDDTNTADTGDQVRLPYAFTGISLHATHA  
 RLRVRLTRTGADAITVHTSDTTGAPVAIIDSLITRPLTTATGSAPATTAAGLLHLSWPPH  
 PDTTTDDTDDTDALRYQVIAEPTQQLPRYLHDLHTSTDHSTTEADVVPVVPVPSNEE  
 LQAHQASDTAVSSRIHTLRQTLTVVQDWLTHPDTTGTRLVIVTRHGVSTSAHDPVDDL  
 HAAVWGLIRSAQNEHPGRFTLLDNTNSDTLTALTLPPTRENQLAIRRDTIHIPRLTR

FIGURE 14(continued)

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HSSDGALTAPVVVDPEGTVLITGGTGTLGALFAEHLVSAHGVRHLLLTSSRRGPQAHGATD  
 LQQRLTDLGAHVITITACDISDPEALAALVNSVPTQHRLTAVVHTAAVLADTPVTELTGDQ  
 LDQVLAPKIDAAWQLHQLTYEHNLSAFIMFSSMAGMIGSPGQGNAAAANTALDALADYRH  
 RLGLPATSLAWGYWQTHHTGLTAHLTDVDLARMTRLGLMPIATSHGLALFDAALATGQPVS  
 IPAPINTHTLARHARDNTLAPILSALITTPRRRAASAATDLAARLNGLSPOQQQQTLATL  
 VAAATATVLGHHTPESISPATAFKDLGIDSLTALELRNTLTHNTGLDLPPTLIFDHPTPH  
 ALTQHLHTRLTQSHTPVGPIASLLSHAIDEGKFRAGADLLMAASNLNQSFNSMAELNQLP  
 AVTDIADASPDGLLTLCISTSENEYARLAAANIHSALTFAEIAAPGFYDAQLPNSIETSA  
 EALATAITGAYANTSIVLVAHSIVCELAQATMTRLQDADIDLVLVLLDPLEGNTSTEDY  
 VETVLTRIEHINAPRVGVDGYLAALGRYLOFHEDRRIPIPETRHMTLHSDTKIDRAQTPM  
 NLLQDEAALTALKIGNWMNDVGVALSVNLE\*

FIGURE 14(continued)

## Mup045 protein

VIWNDIYISGTGRFIPSMRPINDIQVDGVPNDHTIVQSDYISFTEADEPATVMATRAATE  
 ALTTSELVSADVGVLIIYAAIIGDAHHFAPVCHVQRVLRAPDALAFELSAASNGGTQGIIV  
 AANLMTADASVKAAVCTAYRHPIDIISRWSSGMVFGDGAAAVALSRDGGMVRLISGYHG  
 SLPELEVLARNRSNERLGFVLPDVLGKYLTAIARMYQAVIAQVLEEAQTSIAEIDYFGL  
 IGIGIPSLTATILEPNGIPVNKTSWGLLRQMGHVGACDPLLSLNHLFEQNVLRGDKVLL  
 LGGGVGYRLTCIVAEIAMNPGVPGHSTS\*

FIGURE 15

## Mup053 protein

VRQRLNWIAAHGLLRGTARLAARLGDVQSRLVADPMVMANPAPFCDELRAIGPVVSSYGT  
 HLVVSHATAHELLRSEDFEVVSLGSNLPAPMRWLERRTRDDTPhLLLPPSLlavePPNHT  
 RYRKAVSSVFTPKAVAGLRDHVEETASALLDQLTDQASAVDIIARYCSQLPVAVICDILG  
 VPSRDRNRVLKFGQLAGPCLDFGLTWQHQVVRQGLQGLHFWITEHLEELRSNPGDDLMS  
 QMIHASENGSSETHLHATEVRMIGLVLGASFATTMDLLNGIQVLLDAPELRDALSQRPO  
 LWPNAVEEILRLEPPVQLAGRMARKDTEVAGTAIKRGQLVAIYLGAVNRDPSVFADPHRF  
 DITRANANRHAFSGGRHFCLGAALARVEGEVGLRMLFERFPDVRAAGPGNRRDTRTLRG  
 WSQLPVQLGAARSMAIR\*

FIGURE 16

## Mup038 protein

MIVWPEVSTVVDVDGVAMSALVAEPDQEPKAVILALHGGATNARYFDCPGHRALSLHHT  
 GAAAGFTVVALDRPGYGSSAGDPDAMNRPHQRAALAYGALDRILAQRPRGAGVFIMGHSN  
 GCELAMWMAETRGAEELGIELAGTGWHYQPEAREILTATGEHRWVGLYDLLWHPPORLY  
 PPEVLNAAIISSAPAYEEQMADWTRRTFLELVPAVRVPVHFSIAQHEKVWQORDSSALD  
 ETAVLFSGAPRFLHEQPEAGHNISLGHGTAGDYHTTVLSFVQQCLAERLANAQDQVDLAA  
 E\*

FIGURE 17

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atgccagcac cgagcgtgtt tgtcggcctg gaactcgaca ccaacagtta caccggtgtg 60
ccgtgctgga gcgctggccc cgccactgg gccacaaca ccgtcgcggt ggcctacgac 120
ctgcgctatc aacagatccg gtcgctgatg tgtgacggcg gcacgcgccg aaaaaccctg 180
atcgtcatcg ccgcgcccat ggcacgtcac gccgactgga gcaccggccg caactgcccg 240
cccaccaaca accagctcga agccgcgaca ggcttcacc agcgcccat ccagcgggcc 300
cacgaatgcc tacgcctact cggggtggct accgaggtgc tgcgcggccg ccaacgcacc 360
tacatcgagc gcatggcttc ctggagaatg ggcgatcgcc accgcggctg ggcgtccgtg 420
tgggactact acgacaacgg cgaggtcgca cgggttgctc acagcttgtc accccacctg 480
gaacggtcct cagtaaccac acacacctca cctaaaacaa gcctgtttac taccaccccg 540
ggcgccacac ggcggcgga aagcggcgct acgcgcgca acagccaga cggccggggc 600
cggcgacttg cggctcaatg gcgagcagac ccccatgctc ccccatggac tcgtcgggtac 660
agccctacga cgtggtcagc aatgctcgtc gcccccgag ccgcaggttg gactgcacgc 720
gacctgaccg cattggtaca agactggctc ggtaccggtc accgaatacc gtccactcca 780
gcgcgcccga tcgcccgtct cggcacactg cttgcttggc ataccagcca caacagcatc 840
caacaccgcc cagctgcact cgaggaagca cgcgaggccg cagacctggc cgcggttcgc 900
aaacggattc aaaaacaaac cgtgaacac cacgccaacc tcgcggcgcg agaagccggc 960
cgcgcgcgac tgggcggttc cggccaccag gccgccagaa ttgctgccgc tgcgtgctgt 1020
cgcaacgcgc ccgacggcg caccaaaatg gtcgcggcag aagtacgag cgtcgatgcg 1080
gcgatccggc gggcccgcg ccgctaacc agcggcctac gctgacagca gttcgggtcg 1140
atcgagcagc gatgctgcg tgcgcctaat caactccacc ggatcgatcc cttgctgctc 1200
agctaccggc accagttccg tcagcaagtc gccgactgg cgaataagag ccggcaactt 1260
tgttctgtcc gccgcctcga gctctcgaag cttggtggtc tcgaaacgta cctgcagccg 1320
gcccgccata ttgcggttct ctgagccctg acgcccgttg cgcgcgagag cctcttgctc 1380
tgccagaccg gccgtggcgc actggcgctt gaactcgggc gcgtttgtca tgggaaactc 1440
ttcaatagtg cgggacgtc gagccggctc gggcggctac gacatgtaag ccaactgca 1500
gcaacccctc tgccccacac gcgctcatgt aagccagaat ttttgctcgc cccaactccc 1560
atcgcccccc aagaaccgta gagagcaggc tttgaactgc ggatatcagc gcgcgttggt 1620
gcaatgcgcg actggtaaac atgtaagtaa gtttgccata gaacgaggtt ttgcataacc 1680
gatctcgcgc cgcgtgtcac gaaagtggcg caggacttta cttacatacc cctctctgcg 1740
caagaatggg accgtgtcat cgcgcagcga accgtcggcg tatacgtcgc ccgatgccg 1800
caagcagttg ggcgtcacgc ccagcgcgt gagccaaatg ctgagcagcg gcgagctgac 1860
aggcccgcaa tatccacaac aacgggttc caagaacgcg gtgcgcgtct ggaatgggtc 1920
gctcgaccag gacttgccac gaagaaggtc cactcccccg ccagctcact cagcagaca 1980
acaacccgac cccggtgcgc atcaggggta cctcgcgcaa tggtaggacc gccgggaagc 2040
gcgcgtcaac gccgctgcgc acgaactcaa agttgocgca gacctcgtc gacagcatgc 2100
cagcgacgag cgtcgaaaag cccgacagct gatgtcgaag ctgcgcgcgac tgaccatcca 2160
gcaggctgaa ctcacgaaac ggctaaaaga cgacctcgca gtggaatcgg aactgaccga 2220
acagatcatc gatgcttact ccgatgcctt aaccagctc ctggcccccg acttcggccc 2280
accaccgtga cccgcgatca gcaggtaat caggcgctct tctgcccggg caggaacgca 2340
ttgagcacag gggcgatcca cgtcgatcgg gtatcgaaac ccaactttga gccgatgggt 2400
tcgatgacct cctctgtctc ggcggtcaga ctaaacgcga tctgcgcgt gccaccaccg 2460
agatagcgca cggccgaagg gtcggccggg aaaaggctcg gggtaggtgc agtcaggtac 2520
cggctcttct ccatgatctc ggccagttca ccagcctggt acttgatgct gatcgctcc 2580
aaaaccacat gcaaattggt tgacttcacg ttgtgccgat acttctcga gcggctcttg 2640
acgcaggac tgacatatac cgccgtggtc ggcttgacc gactgcgtgg ccggccaggc 2700
ttgcgtgcgc gcactttggc ggccgagaca tcagaggtct tagaggcggt tgcggcaacc 2760
ggtctgtcct caacaggtac ctcgacagca gcctgttcgg gagcactggc gggccgaggc 2820
tgggctcgct tgacgaggtc agctagacca gcgcgcgac tcttcggtct tgtgaggtct 2880
gcgagatccg cttcgggcag ctcctgcggc gtttaacttg tcacggccac actcctcgt 2940
tgatcaggtc ctggcgatc tttgaacccc gcgtgagaat tctccggtc agcttgccga 3000
agtcctcggc cagctcaca gatgtcgtc tgacgacctg agtcgcatct gctctccct 3060
gccgtatcgc tgaccgagac ggattattga cgatttcctg ctcaagttcg tgggccaacc 3120
gaccaaactt aggcacgtcc ctgccaacag cttctgagtg gcggatgaac gaatcgagca 3180
tcacgtcatc gttctgcccc aaatctgcag ccacattctt cttcatctct tccggatcc 3240
tcgtcgatga agttcctgac gcaaacacga aacagccgag caacaccaca gatgggtgt 3300
gctcgcgcac cgcccttaga tcgcctgcca actcgcgcag tccggtcctt gataggatc 3360
cggtcttcat cggaactaca acaaacccgc acgcacacag ggcgcctga agaagcaact 3420
ggttctccgc aggggaatca atgaagataa ccccgtaatg atcactgatc tgtgccaacg 3480
ccagcgccag cgacatcagc acctgtttgg cagtctcgcg gttgcccac tctgcagcca 3540
tcaccggcgc gatccgacgc acgaaagcc caccgggaac aacatccaat cccggacgga 3600
catcgggaaat cggggtaac gcagcgccgc cagtaatcgc gctgtagaga ttcctaccct 3660
tgtcgtcggc ttctgtatc gcgaagccaa gcatgttcgc cagttgccc tggccgttga 3720
gatcgaccaa taaggcgcgc gctccatcgc aggaacgag cgcggcgctg tgggtagaac 3780
acgtcgactt cctacccca ccttgccgt tggcgaacag ataacattg cccagcttgc 3840
tcaaattgac cgcgggttct accagccag cgtcgtccca aacggctacg cttctactca 3900

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FIGURE 18

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tgcggggcgcc ttactgtgtt ggaatcgagg gaatgccgag cctggcgatg cgcgccaccg 3960  
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FIGURE 18(continued)



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FIGURE 18(continued)

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gtagtcggcg	cagcgctcgc	agtgatcgcg	ctgatagtgc	tcataccacc	cgctggcgga	15780

FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)



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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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cgagcgtcga tgtttctgtg ttcgcaggt atcagcaatt cgggtgatcg tgtgttatcg 55620
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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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acaccatggg cagaaccag atgctcgggc aacaaggcac ccagcgcccc ggtccccccg 68100
gtgatcaaca ccgtgccctc aggatctacc accaccggcg cagttagcgc accgtcactg 68160
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agcagtgtga agcgtccggg gtgttcgttt tgggcgcgtc ggtacaggcc ccacactgcg 68340
gcgtgggcta ggtcggggac cgggtcgtgg gactgtgtgc tgacggcgtg gcggtgcacg 68400
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gcaagtgaag tttctctctc gcgcaagctt tccattgcc cgtgcacagc caccagttag 71880
gacgattgcc cgttatcgat gaccaaacta ggtcccgcta gaccaggtgt gtaggagaca 71940
cggttgccga tgaggctgcg gtgagtcgcc gaaaggat gtgcagtcac cgtgcgcgg 72000

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FIGURE 18(continued)



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tcgggttgga	tctagcgacc	gggtgaccaa	gtataggcat	ttcaggggcg	actgctcggt	75060
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gccactgcca	taccacgccc	gatcgtggcg	gtcatatcca	aggtgctcgg	acagttcctc	76020
atccaaagcg	atctcaatga	cggttttggt	catcgccctg	agcaatccgc	caggcccggt	76080

FIGURE 18(continued)

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taaccaaacg	ccggcctcgc	gggcctggcg	caccaactcg	cgggcgactt	ctaactcatc	76140
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ggcgccgcaa	tttcagcgaa	ggtcagtgaa	tgaatgttcg	cagcagcgag	gcgagcgta	79680
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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)



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FIGURE 18(continued)

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FIGURE 18(continued)

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ttgacacct	tggaatgtcg	ggcgtagtt	gtagccctgt	gcagccaggt	cgctgtagaa	116820
gtcatccacc	tcgatcgcg	ctgtgccggg	tggaggccac	ggcagggcg	ttagggggag	116880

FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)



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tgccgagatc	gactatttcg	gcctgatcgg	tataggaatt	ccaagtctca	cagcgactat	141360
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FIGURE 18(continued)

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ccacgttgga gcttgcatc ccctgtgag ccttaaccac ctattcgagc agaatgtcct 141480
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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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FIGURE 18(continued)

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gccgtgcgta ctgctccatg acctctgctg ggtcggccgc gccgaaccac cgctgccgaa 165840
actgatcgtc ggcgagtttg tctgcagcta ataggcgcg ggtccggcg aggaatacgc 165900

```

FIGURE 18(continued)

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cccacgggat gtagccgaag ccctcgttgg acatagccac acactctgtc gttccgttgg 165960
cctcgcgtcg aaacactccg actgcccatt caatgcacgc atagttgacc atgtcgtat 166020
cacgacgtag cctgcgcacc aattcttttg ccgctgcca ctctggtgat tcggcccggc 166080
tgccggttgg ggtcccgcgc ctgacgacgc ttgccgcac gaccattgcy gcccccgagc 166140
ccgcccgtga gctcccgtg ggtcccgcgc gacctgcaga gccgtctcgt gtggccgagc 166200
tgccggcagg ggtgaccgcg gccgcacgcgc cggcagcgcc gctggcggt accggggctg 166260
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gatgccgctt ccccgcctgt gcggaagac cgggtcgcgc ggcattggag tgcacccag 167040
cccgagaggt agggccgtaa tatcggtacc ggcagtttcc tggaaagactg tggcccgagc 167100
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tgctgcctgc tgctggactg cgttttttgc ctgcgagagc tcttgatttg ctctgttaac 167220
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gatccggcaa ccgcaggcac cgcggcaccg gagacggcac cggcaccagt caaccggcg 169920
gacggcgatg ccgtcggcaa acccatcccc cgacggcgcc gatcccgcc gcgcgacgctc 169980

```

FIGURE 18(continued)



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accgacacca cctgcgcgcg caggctcggt aagcccgccc ccaccgcgcg tgccagcacc 170040
aaaaaccacc aacgcgcgct cgagtccttc cgagtcgata tcgacgcgct cggcgccagt 170100
caatcccgat gccaaaccgg tcatcccttg cgtggcttct tgagccaaacc cttgcagctg 170160
ctgaccaagt ttttgtggga tttggccggc catgccgaca ccggcgccca gtgctccggt 170220
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gcgggggtct cgtcgagcc cgctgatcgg tgcagaccgc ggtagcgcg tgacaggcca 172920
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FIGURE 18(continued)

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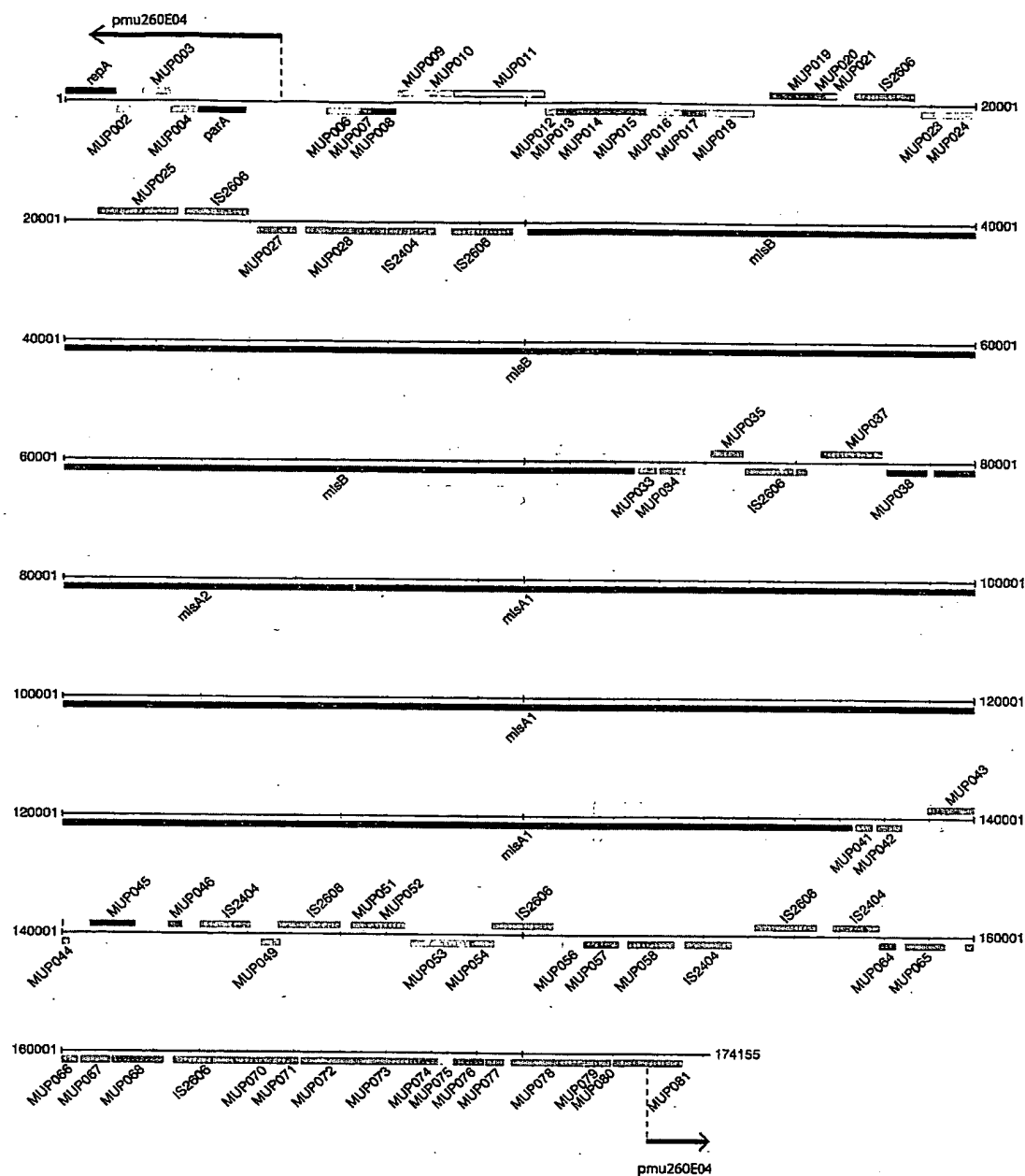


FIGURE 19

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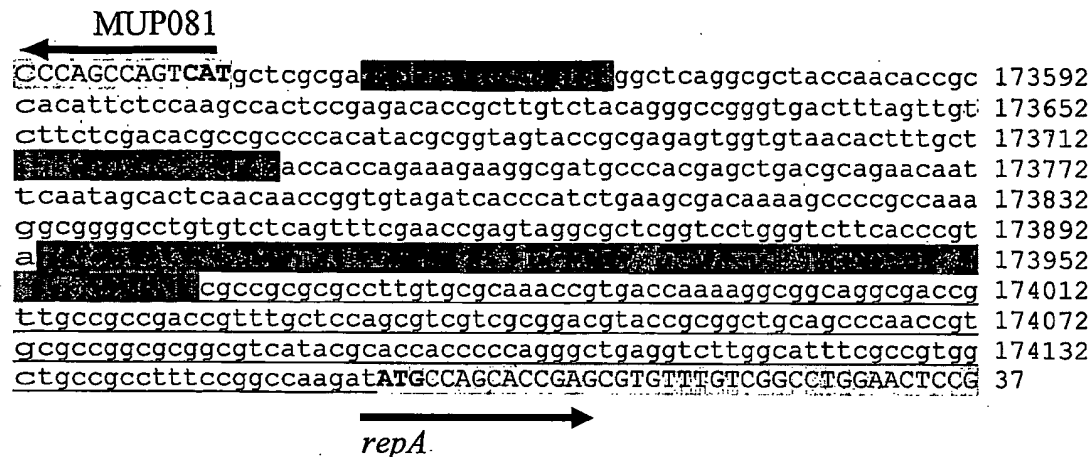


FIGURE 20

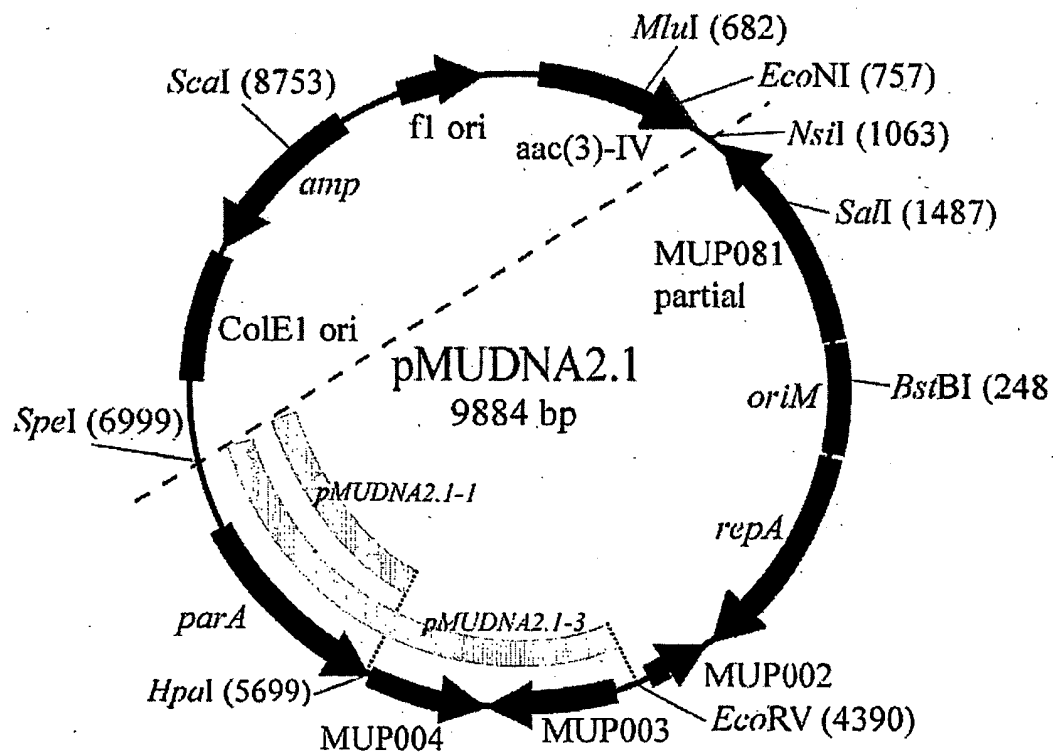


FIGURE 21

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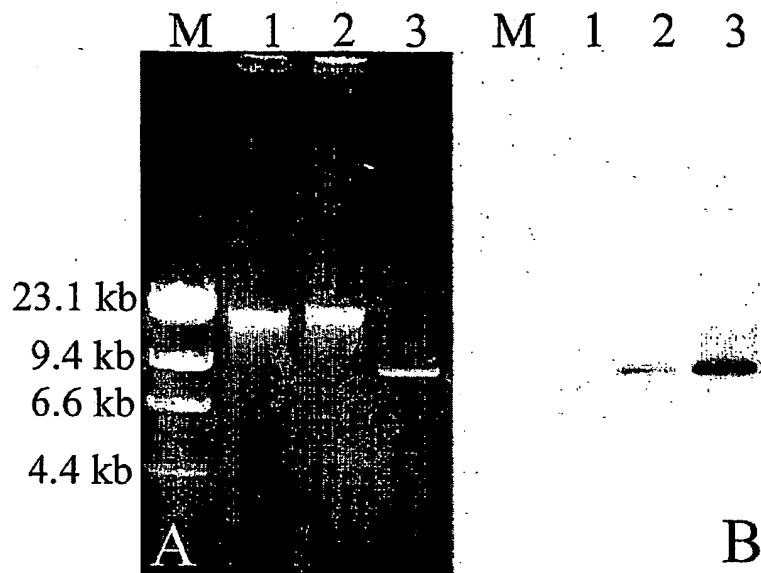


FIGURE 22A

FIGURE 22B

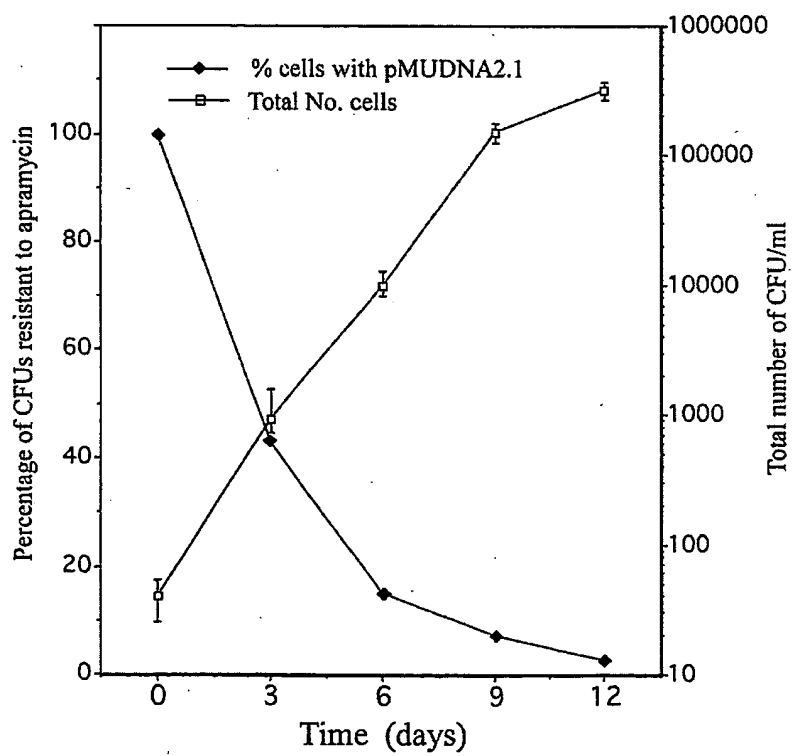


FIGURE 23

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AGCGCAGGGCGGGTGCCCAGGCCAGGGC...GCCCTGGGTGCCCAGGTATGGCT [SEQ ID NO.:59] 10 bp  
CGGCGCGGGTTGCTGCGGCGGCCAGGGC...GCCCTGCCGCGGCGGCAAGTCGG [SEQ ID NO.:60] 10 bp  
AACACCGCATTCCCCGGTCACCCAGGGC...GCCCTGCCCGGTACCCGCCGCCG [SEQ ID NO.:61] 10 bp  
GGCAACGGATCTAGCCGGGGTGCAGGGC...GCCCTGAGCCGGGGTGCAGTCGG [SEQ ID NO.:62] 10 bp  
CGAGGCCATCGCCATCGCCGCCAGGGC...GCCCTGCATCGCCGCCGAACCCT [SEQ ID NO.:63] 10 bp  
ACGATGCCGGAGAAATCTCAGCGCAGGGC...GCCCTGAATCTCAGCGCCGGGGG [SEQ ID NO.:64] 10 bp

FIGURE 24

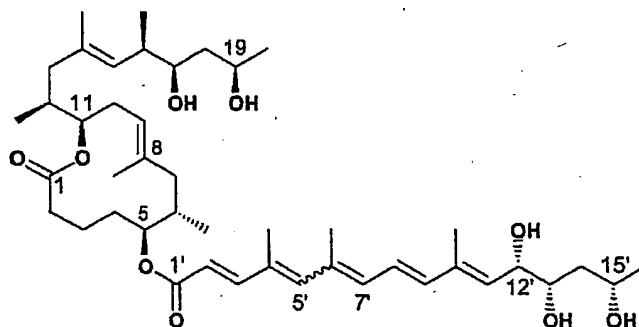


FIGURE 25

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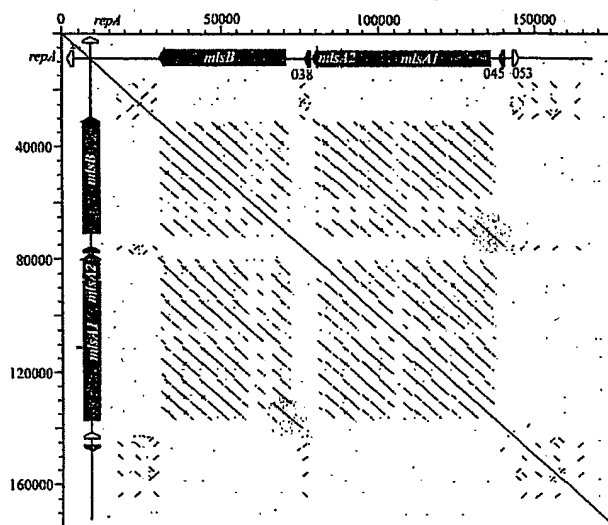


FIGURE 26

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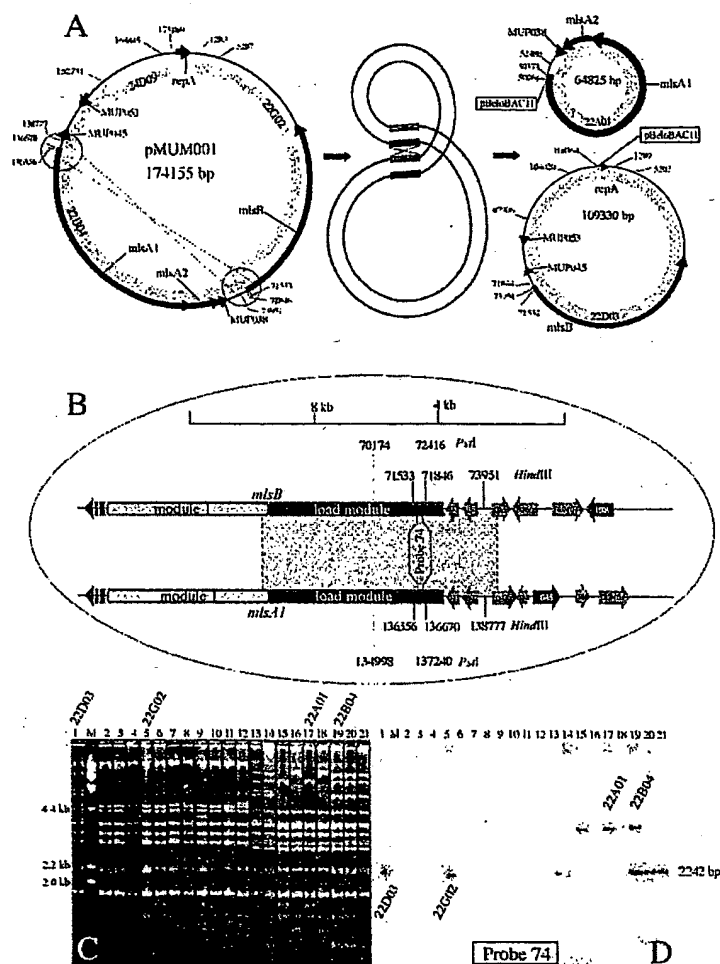


FIGURE 27A - FIGURE 27B - FIGURE 27C - FIGURE 27D

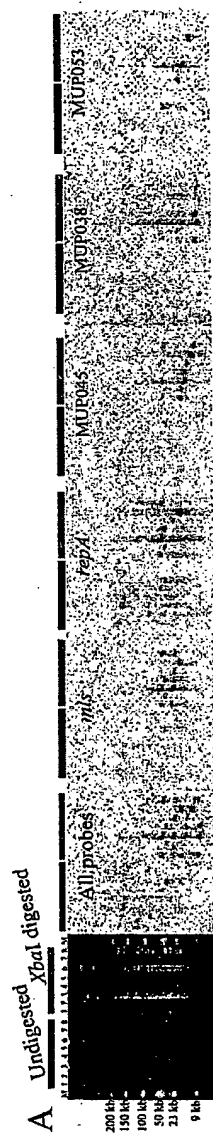
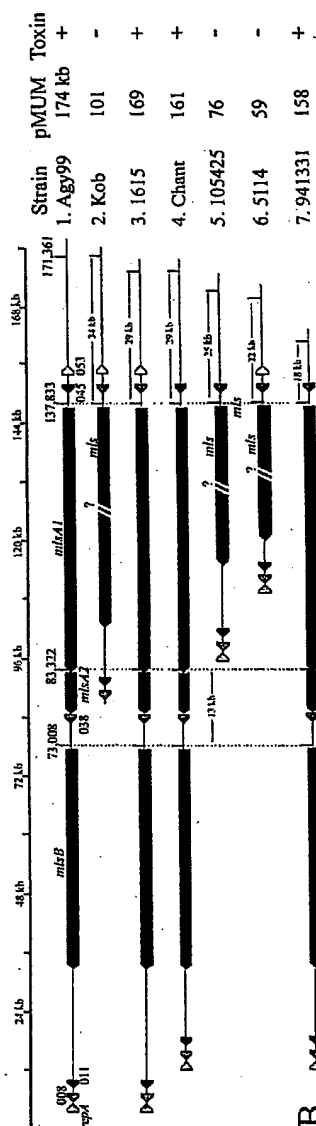


FIGURE 28A



**FIGURE 28B**



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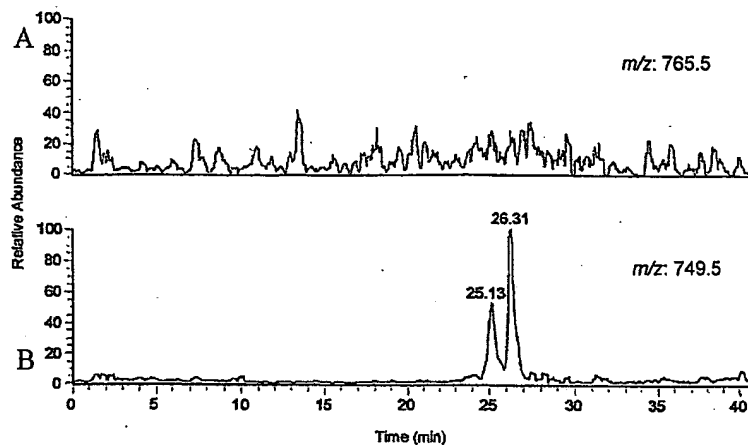


FIGURE 29A - FIGURE 29B

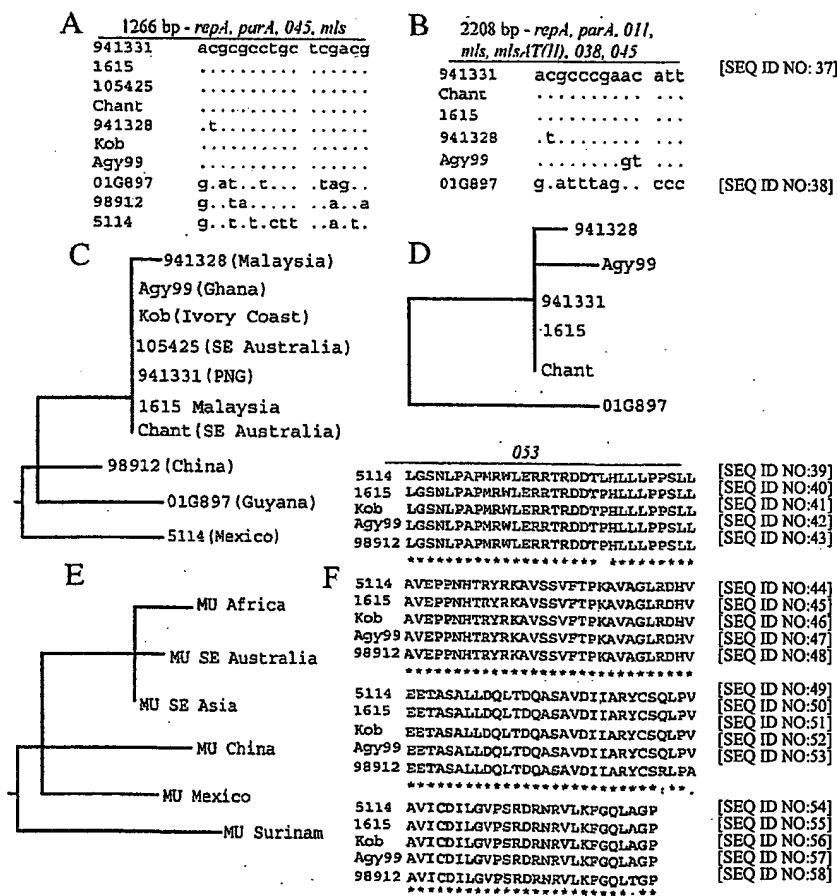


FIGURE 30A - FIGURE 30B - FIGURE 30C - FIGURE 30D - FIGURE 30E - FIGURE 30F

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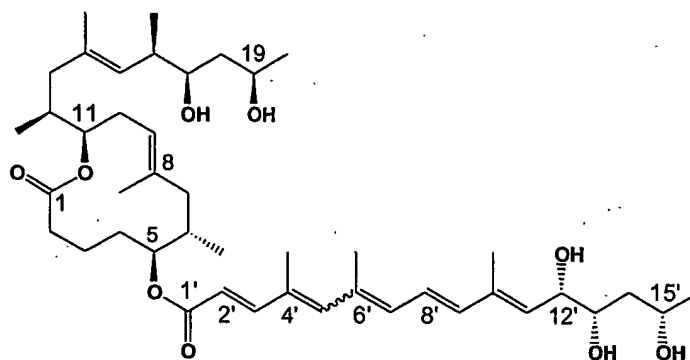


FIGURE 31A

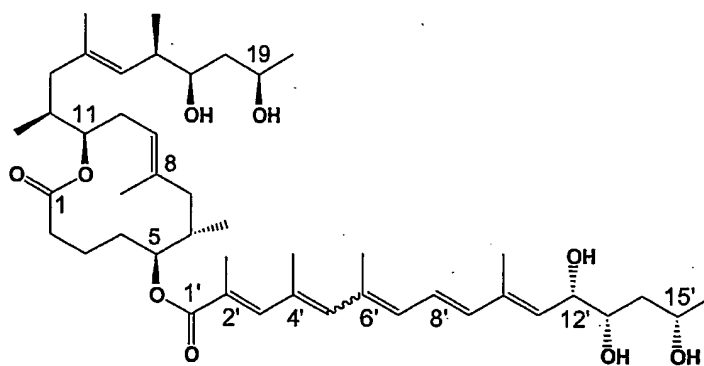


FIGURE 31B

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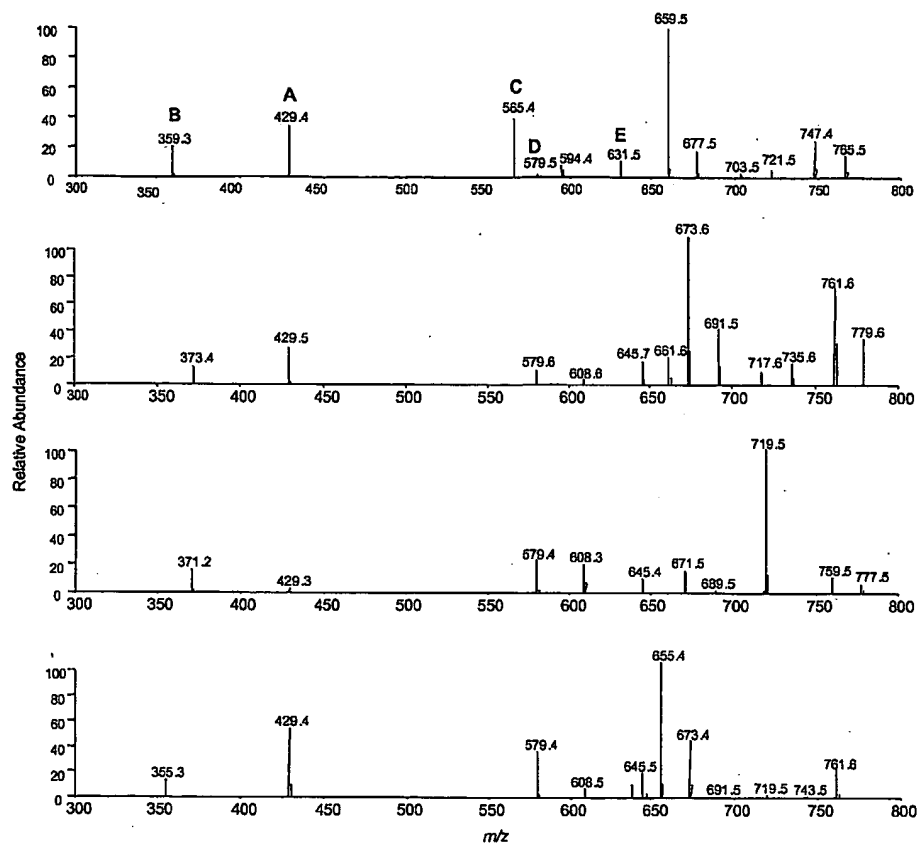


FIGURE 32

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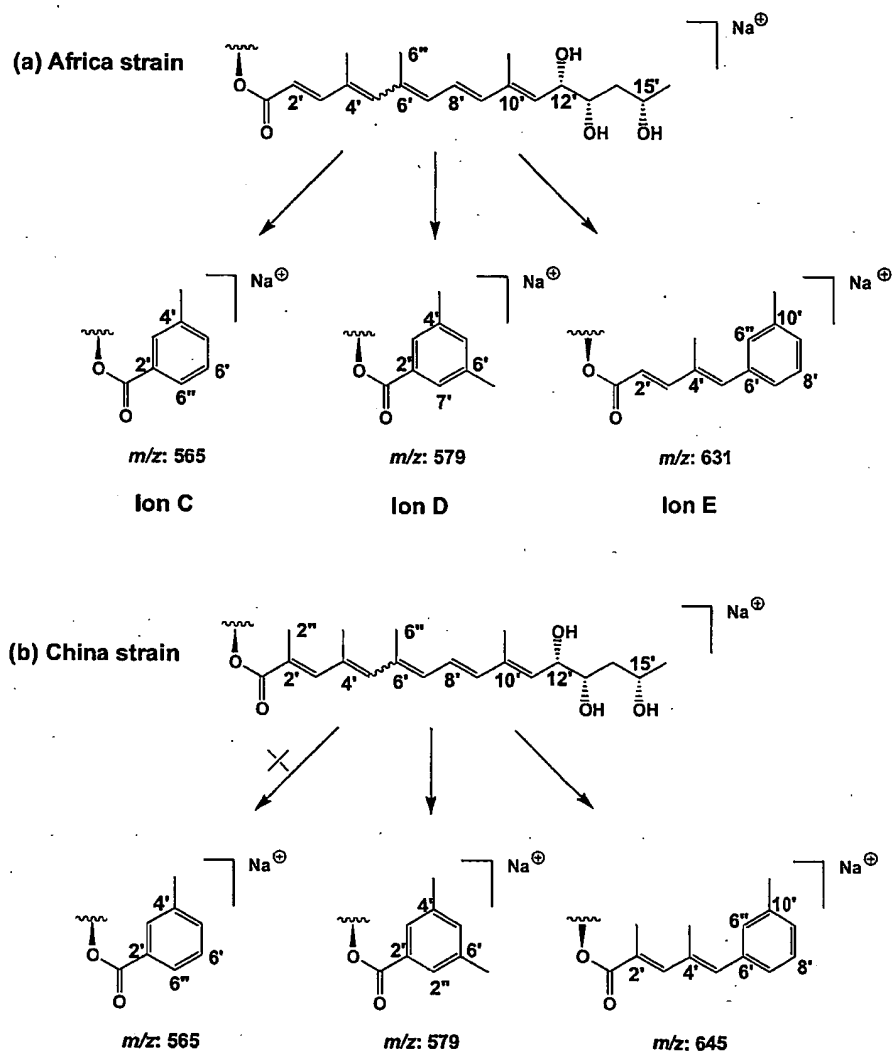


FIGURE 33

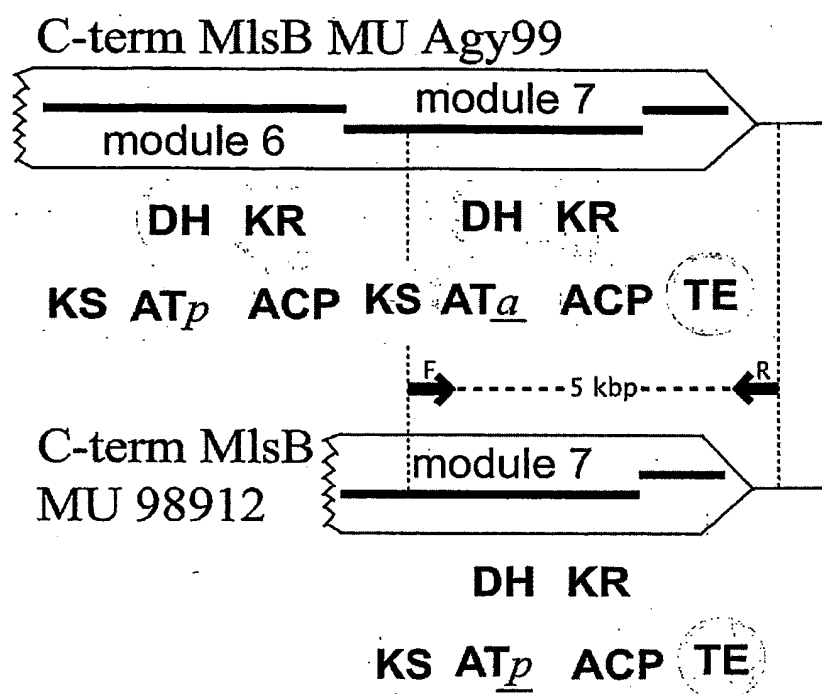


FIGURE 34

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```

Agy99 - AT6 PHRATITTSIEHHSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQG
98912 - AT7 PHRATITTSIEHHSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQG
Agy99 - AT7 PHRATITTSIEHHSENNHDTTDALAALHALANNGTHPLLSRGLLTPOGPGKTVFVFPQG
*****

Agy99 - AT6 SQYPGMGADLYRQFFVFAHALDACDAALQPFTGWSVLAVLHDE--PEAPSLERVDVQIP
98912 - AT7 SQYPGMGADLYRQFFVFAHALDACDAALQPFTGWSVLAVLHDE--PEAPSLERVDVQIP
Agy99 - AT7 SQYPGMGADLYRQFFVFAHALDEVAALNPHLDVALLEVMSQODTAMAQLLDQTFYQIP
*****

Agy99 - AT6 VLFSVMVSLAALWRWAGITPDAVIGHSGQELAAAHVAGALTLPAAAAVVALRSRVLTDLA
98912 - AT7 VLFSVMVSLAALWRWAGITPDAVIGHSGQELAAAHVAGALTLPAAAAVVALRSRVLTDLA
Agy99 - AT7 ALFALGTALHRLFTHAGIHPDYLLGHSIGELTAAYAAGVLSLODAATLVTSRGRMQSCT
*****

Agy99 - AT6 GAGAMASVLSPEEPLTQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDA
98912 - AT7 GAGAMASVLSPEEPLTQLLARWDGKITVAAVNGPASAVVSGDTTATELLITCEHENIDA
Agy99 - AT7 PGGTMLALQASEAEVQPLLBGLDHAVSIAAINGATSIVLSGDHDSLEQIGEHFITQDRRT
*****

Agy99 - AT6 RAIPVLYPSHSPYMEHIRHQFLDELPELTTPRPSTIAMYSTVDGEPHDTAYDTTMTADYW
98912 - AT7 RAIPVLYPSHSPYMEHIRHQFLDELPELTTPRPSTIAMYSTVDGEPHDTAYDTTMTADYW
Agy99 - AT7 TRLQVSHAFHSPHMDPILEQFRQIAAQLTFSAPTLPLSNLTC---QIARHDLASPDYW
*****

Agy99 - AT6 YRNIRNTVRFHDTVAAALLGAGEQVFLELSPHPVLTQAITDTVEQAGGGGAAPALRKDRP
98912 - AT7 YRNIRNTVRFHDTVAAALLGAGEQVFLELSPHPVLTQAITDTVEQAGGGGAAPALRKDRP
Agy99 - AT7 TQQLRNTVRFHDTVAAALLGAGEQVFLELSPHPVLTQAITDTVEQAGGGGAAPALRKDRP
*****

Agy99 - AT6 DAVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAM
98912 - AT7 DAVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAM
Agy99 - AT7 DAVAFAAALGQLHCHGISPSWNVLYCQARPLTLPTYAFQHORYWLLPTAGDFSGANTHAM
*****

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FIGURE 35

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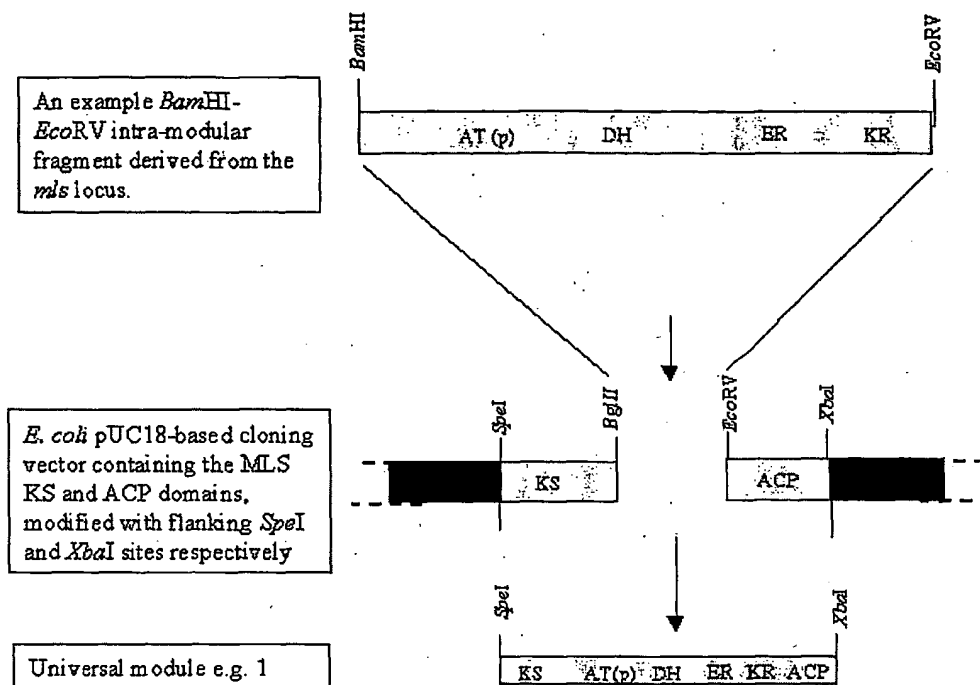


FIGURE 36

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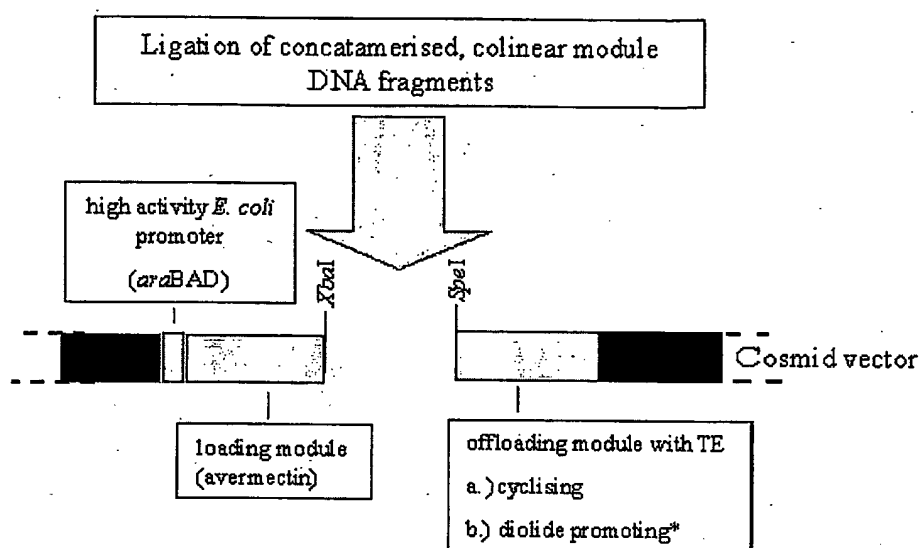


FIGURE 37



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